SCHOOL OF NURSING AND MIDWIFERY

COLLEGE OF HEALTH SCIENCES

UNIVERSITY OF GHANA

LEGON

EXPLORING PAIN MANAGEMENT BY NURSES AMONG ROAD TRAFFIC ACCIDENT CASUALTIES AT A MILITARY HOSPITAL IN GHANA

BY

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THIS THESIS IS SUBMITTED TO THE UNIVERSITY OF GHANA, LEGON IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF MPHIL NURSING DEGREE

JULY 2019

DECLARATION

This is to attest that this thesis is the result of research conducted by Thomas Kwame Tata for the Award of Master of Philosophy Degree in Nursing at the School of Nursing and Midwifery of the University of Ghana. This thesis has not been presented either in whole or part to any university for award of any degree or certificate. Authors and publishers whose work have been cited in this study have been duly acknowledged in the text and the reference list.

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ABSTRACT

The quest for pain relief has been the reason why casualties visit the emergency department to seek appropriate intervention. The aim of the study was to explore pain management by nurses among Road Traffic Accident casualties at the 37 Military Hospital. A qualitative descriptive design guided by the caregiver aspect of the Social Communication Model of Pain (Craig, 2009) was used in the study. Purposive sampling technique was employed to recruit thirteen nurses from the trauma surgical emergency unit of the 37 Military Hospital. Interviews were conducted using a semi-structured interview guide. All the interviews were recorded and transcribed verbatim. Data was manually analysed and four themes were generated using thematic content approach. These were; nurses' pain assessment of casualties, nurses' pain management of casualties, nurses' personal pain experiences and institutional factors influencing casualties' pain assessment and management. The study identified the importance of application of adequate knowledge of pain assessment and management in the intervention of RTA casualties' pain. Personal pain experiences of nurses turn to influence their pain management. The study also identified inadequate staff and logistics, lack of training and protocols and limited working space to adversely affect pain management of road traffic accident casualties. The study concluded with the recommendation that nurses at the emergency units to be adequately knowledgeable in pain management and have access to an environment that can meet the pain relief expectations of casualties.

DEDICATION

I dedicate this work to my wife and children (Agnes, Amenuveve, Edem and Makafui) and all my siblings for their encouragement and support.

ACKNOWLEDGEMENT

I give thanks to God Almighty for His immeasurable mercies upon me throughout this study. I wish to express my appreciation and gratitude to all the participants of the study. I am forever indebted to my supervisors Prof Lydia Aziato and Dr Lillian Akorfa Ohene for their guidance, support and encouragement to complete this work. I am also thankful to all lecturers and non-teaching staff of School of Nursing and Midwifery at the University of Ghana for their assistance during this work.

My special thanks go to my wife Agnes Esi Ledi who took care of the home during my absence and supported me in this work. I am grateful for the diverse contributions from my colleagues and all others towards the completion of this work. I wish to express my gratitude to the Administration of the 37 Military Hospital for permitting me to conduct the research in their facility and the staff of the Trauma Surgical Emergency Unit who were participants of this study. I am also thankful to all authors that I used in this work.

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LIST OF ABBREVIATIONS

Acronym	Meaning
APS	American Pain Society
CINAHL	Cumulative Index to Nursing and Allied Health Literature
CPD	Continuous Professional Development
ILO	International Labour Organisation
IRB	Institutional Review Board
KASRP	Knowledge Attitude Survey Regarding Pain
MOH	Ministry of Health
MTTD	Motor Traffic and Transport Department
NMC	Nursing and Midwifery Council
NSAID	Non-Steroidal Anti-Inflammatory Drug
RTA	Road Traffic Accident
RTI	Road Traffic Injury
TSEU	Trauma Surgical Emergency Unit
WHO	World Health Organisation

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

A road traffic accident is considered as an accident involving at least one road vehicle occurring on road open to public circulation in which at least one person is injured or killed. The injured persons are accident casualties who suffer trauma and requires medical treatment with or without hospitalization while killed persons are accident victims who die immediately or within 30 days following the accident (Insee, 2016). Road traffic injury (RTI) accounts for more than 1.3 million deaths and about 50 million people injured each year. It is the 8th leading cause of death globally and the number one cause of death among the youth (aged 15-29 years). The burden of RTIs internationally has been growing and it is projected to become the fifth leading cause of mortality by 2030 if no interventions are put in place (WHO, 2016). The most vulnerable people on the roads include children, youth, older people and people with disabilities. In 2017, the Motor Traffic and Transport Department (MTTD) of the Ghana Police Service indicated that 20,444 vehicles were involved in a road traffic accident with 3,300 pedestrian knockdowns and 12,166 travellers injured (Lartey, 2019; Nyarko-Yirenkyi, 2018). All these casualties who might sustain various degrees of injuries would likely end up in the various hospitals for appropriate health assistance in which pain management would not be an exception.

The quest for pain relief has been attributed to casualties to visit the emergency department for appropriate intervention (Farahmand et al., 2017). A national survey of patients at the accident and emergency centres in the United Kingdom indicated that 64 per cent of patients experience pain (Smith et al., 2015). It is however recommended by the Royal College of Emergency Medicine (2014) that patients with severe pain should be given analgesia within 20 minutes on arrival at the emergency centre and continue effective

reassessment for further and appropriate management as required. But most often the management of such pain is inadequate. About 50 per cent of patients in a survey of pain relief in the emergency setting in the UK expected that more could have been done in the management of their pain (Smith et al., 2015). A study conducted in Turkey on analgesia approaches to severity of pain in adult trauma patients note that all adult trauma patients admitted to the emergency department experienced pain, with 51.7 per cent of the participants describing their pain as very severe and 62.9 per cent indicating that they still had pain even though they had treatment (Aslan, Sariyildiz, Gürkan, & Aygin, 2008). Patrick, Rosenthal, Iezzi, and Brand (2015) and Ucuzal and Doğan (2015) also found that patients may be discharged either with untreated pain or increased levels of pain.

Severe or intolerable pain affects haemodynamic stability and causes mydriasis, pallor, insomnia, and changes in immune system functioning (Alavi, Aboutalebi, & Sadat, 2017). Traumatic pain is associated with diverse psychosocial effects such as anxiety, depression, restlessness, confusion and posttraumatic stress disorder (Stites, 2013). A severe pain also tends to delay ambulation, cause inadequate rest and sleep and subsequently aggravate into some complications contributing to morbidity and mortality in victims (Aziato & Adejumo, 2015). This impedes recovery and early discharge of victims of road traffic injuries hence increased hospitalization period and cost of treatment.

The inadequate treatment of traumatic pain at the emergency department could be attributed to nurses' focus on the maintenance of optimal haemodynamic and respiration such as arresting haemorrhage, immobilization of fractures, patent airway and administration of oxygen (Varndell, Fry, & Elliott, 2017). These preoccupation lead to the neglect of adequate pain management in the emergency units (Wenderoth, Kaneda, Amini, Amini, & Patanwala, 2013; Werner et al., 2013). Active pain management in emergency departments is hindered by concerns of masking primary symptoms to elicit and make a

diagnosis. Opioids which are most effective in relieving severe pain are also known to cause respiratory depression (Çevik, Yeşil, Öztürk, & Güneysel, 2011; Karmakar & Ho, 2003)

Adequate pain management may yield many positive effects, such as reduction in psychological stress and anxiety, reduced heart rate and blood pressure, and enhanced oxygen intake (Albrecht et al., 2013; Gausche-Hill et al., 2014). This makes patients more relieved, less anxious and communicates better with healthcare providers. According to Çevik et al. (2011) adequate pain relief brings about decrease morbidity and mortality, increase patient satisfaction, early recovery and discharge, reduces hospitalization period and cost of treatment.

Yildirim, Cicek, and Uyar (2008) indicate that effective pain management depends on the knowledge and skills of the nurse to accurately assess the pain and take an appropriate clinical decision. Despite extensive research and updated guidelines on pain management, satisfying patient expectations for adequate and timely relief of pain remain a challenge in most emergency departments (Stephan et al., 2010). According to Wheeler et al. (2010) nurses have limited knowledge in the area of assessment and management of pain at the emergency department. It was also identified by Aziato and Adejumo (2014) that nurses undermine the pain experience of patients, which makes nurses neglect or inadequately administer the prescribed analgesics. This reiterates the fact that effective assessment of pain of road traffic accident casualties by nurses who are mostly at the frontline of triaging would result in prudent management and good pain relief (Vuille, Foerster, Foucault, & Hugli, 2017).

Pain assessment is key to its management, but it is difficult to rate with accuracy (Tait, Chibnall, & Kalauokalani, 2009). It becomes more difficult in unpredicted situations where there are pressure and limited time to act in the emergency department (Wulp et al., 2009). It is difficult for nurses to objectively estimate pain, relative to checking pulse and

respiration rates, temperature and blood pressure. Pain is a phenomenon associated with sensory and affective characteristics and assessment which highlight the subjectivity of the pain experienced from the sufferer's perspective (Araujo & Romero, 2015; Vallath, Salins, & Kumar, 2013). Pain perception and expression also differ according to patient social position and life situations (Loduca et al., 2014; Stanke & Ivanec, 2010) and because pain has psychological, social, spiritual as well as physical dimensions, it is greatly influenced by cultural factors (Narayan, 2010) making people of different cultures respond differently to pain. It is, therefore, imperative that the eliciting of pain and its subsequent management are also influenced by the caregiver's cultural background (Ogala-Echejoh & Schofield, 2010). Narayan (2010) further indicates that nurses' assessment and management of pain are influenced by what they learn through knowledge acquisition and what they are accustomed to.

1.2 Problem Statement

According to the Motor Traffic and Transport Department (MTTD) of the Ghana Police, Greater Accra region in 2017 recorded the highest incidence of road traffic crash of 8,893. Pedestrian knockdown alone in Accra and Tema was 1,196 and 200 respectively. An average of 15 casualties from vehicular and motorcycle accidents are recorded within a week (about 800 RTA casualties yearly) at the Trauma Surgical Emergency Unit (TSEU) of the 37 Military Hospital with an average 5 days admission before either discharged home or transferred to other wards for those presenting with moderate to severe injuries. These casualties present with various degree of injuries and experience mostly moderate to severe pain which requires prompt relief to enhance optimal management of their condition (Pak, Micalos, Maria, & Lord, 2015). The drift of physicians alone initiating pain management to nurse initiation of pain relief has greatly improved timely provision of appropriate pain management in the emergency department (Varndell, Ryan, Jeffers, & Marquez-Hunt,

2016). This is increasingly making emergency nurses in the resuscitation area of the emergency department more responsible for the safety and wellbeing of accident casualties (Finn et al., 2014). However, research in the area of how emergency nurses detect, assess, influence and manage pain for accident casualties is limited in Ghana. Hence, the need to explore the knowledge, experiences, and facilities available for nurses in pain management of road traffic accident casualties and recommend measures that might improve the standard of care rendered to these accident casualties.

1.3 Purpose of the Study

The purpose of this study is to explore the factors that influence nurses' management of pain of road traffic accident casualties in the military hospital emergency unit.

1.4 Objectives of the Study

The specific objectives are to:

1. Explore the knowledge of nurses in assessment and management of pain of road traffic accident casualties.
2. Describe the personal pain experiences influencing nurses' assessment and management of road traffic accident casualties' pain
3. Identify institutional factors influencing nurses' assessment and management of pain of road traffic accident casualties.

1.5 Research Questions

The research questions that guided the study are:

1. What is the knowledge of nurses in assessment and management of pain of road traffic accident casualties?

2. What are the personal pain experiences that influence nurses' assessment and management of pain of road traffic accident casualties?

3. What are the institutional factors that influence nurses' assessment and management of pain of road traffic accident casualties?

1.6 Significance of the Study

Road traffic accident casualties experience moderate to severe pain and as a result, need urgent interventions. It is therefore the responsibility of health care professionals to render timely remedies to abort such suffering. Effective pain management is dependent on evidence-based practice knowledge, positive attitude and good clinical-judgement. Nurses are mostly the first point of contact and often do the initial assessment and triage, it is important to equip them with the needed skills and knowledge.

Accordingly, the current study is deemed to be significant from two standpoints: theory and clinical practice. Theoretically, the current study is envisaged to contribute significantly to the literature on patient care and pain by filling out the research gap on how nurses detect, assess, influence and manage pain for accident victims, particularly from a military hospital context in a developing country since prior to now no study existed on the issue. To practice, an understanding of how personal pain experiences of caregivers influence assessment and management of pain of causalities could aid caregivers for rendering care to people in pain.

In addition, insights into the knowledge of nurses in assessing and managing the pain of road traffic accident casualties could help unravel their areas of deficiencies (if any). These findings could form the basis for offering recommendations on training to help correct the deficiencies. Moreover, information on the institutional factors that shape nurses' assessment and management of pain of road traffic accident casualties could provide an

opportunity for improving the factors (where necessary) to enhance nurses' pain assessment and managing for quality pain relief.

1.7 Operational Definitions

RTA: Acronym for Road Traffic Accident and it refers to any accident involving at least one road vehicle occurring on road open to public circulation in which at least one person is injured or killed

Casualties: Persons involved in RTA who suffer trauma and requires medical treatment with or without hospitalization

Pain: Any unpleasant sensory or emotional feelings due to tissue damaged by physical trauma.

Nurses: Registered healthcare professionals that have undergone thorough nursing training in nursing college.

Pain management: Any pharmacological or nonpharmacological approaches to avoid, reduce or eliminate pain.

1.8 Structure and Organisation of the Study

The study is organized into five chapters. It begins with chapter one, which is the introduction of the study that presents the background, problem statement, research questions and objectives, significance of the study, scope and organizational structure. Then followed by chapter two with the literature review and theoretical framework. Chapter three presents the methodology, which details the techniques and strategies including the research design, research methods, population, sample and sample design, research instruments, data collection design and process, ethical issues considered, methodological rigor, data management and its techniques for analysis. Chapter four displays the results of the analysed

data whereas Chapter five discloses the discussions of the results in relation to the literature review. Finally, the chapter six ends the study with the summary of major findings, conclusions, and recommendations.

CHAPTER TWO

LITERATURE REVIEW

This section presents the literature review on pain management practices by nurses regarding road traffic accident casualties. The social communication model by Craig (2009) would be described to guide the review of related literature of the study. These would include: nurses' knowledge in assessment and management of pain, personal pain experiences of nurses in assessment and management of pain and institutional factors influencing assessment and management of pain.

Some online databases such as PubMed, Sage, Science Direct, CINAHL, and Google Scholar were used to search for information pertaining to the study. Key terms used in the search included "pain assessment", "nurse's knowledge in pain assessment", "pain management", "nurses' knowledge in pain management" "factors influencing pain management" "emergency pain management".

2.1 Conceptual Framework

Although the Social Communication Model of Pain by Craig (2009) guided the study, some other conceptual models such as Pain Empathy Model (Goubert et al., 2005) and Biopsychosocial Model of Pain (Gatchel, Peng, Peters, Fuchs, & Turk, 2007) were considered. The pain empathy model stressed mainly on eliciting pain by the caregiver. It entreats the caregiver to be equipped with the ability to perceive and acknowledge other's pain accurately. However, after effective assessment of pain by the empathy model constructs, the model made less emphasis on pain management thus limiting the pain empathy model as a guide to this study. The biopsychosocial model of pain has been mainly used for chronic pain management. The model considers disease as multifaceted interactions among biological, psychological and social factors with emphasis on the biological factor which entails the physiology of pain. This is, however, a qualitative study exploring the

management of pain by nurses among road traffic accident casualties which are mostly considered as acute pain and therefore limits the application of the model to this study.

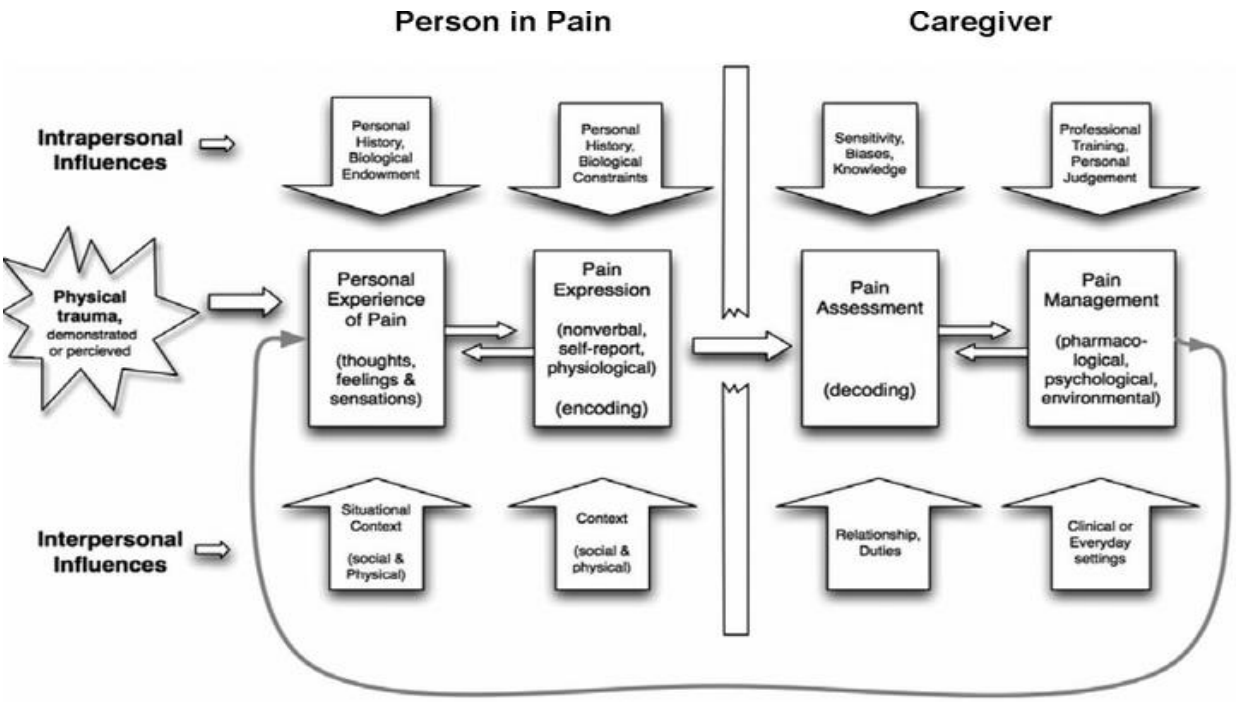
The Social Communication Model of Pain

The social communication model of pain (Craig, 2009) is adopted to aid this study which seeks to explore nurses' pain management of RTA casualties at the emergency unit. This model was published by Craig (2009) and reviewed by him in 2015. The model was used by Quinn (2016) for an interdisciplinary integration of models and theories to nursing research. Versloot and Craig (2009) used the model to understand the acute pain experiences among children in dentistry to improve the process of pain assessment. (Gallant & Hadjistavropoulos, 2017) also used the model to investigate how social parameters influence how pain is expressed.

The framework considers the factors that influence pain and their relationships. The model was developed to give a broader understanding of the various intra-personal and inter-personal factors influencing pain and pain management (Craig, 2009). The main constructs of the model are pain experience, pain expression, pain assessment, and pain management. The model is divided into the person in pain constituting pain experience and pain expression and the caregiver comprising of pain assessment and pain management. The model indicates that each process is regulated by biological, psychological and social influences (Karos, 2017). Craig (2009) explained that the model follows the communication process sequence in which damage to the tissue such as dental trauma initiates the experience and expression of pain (Versloot & Craig, 2009). Individual's pain expression is influenced by the person's pain experiences. The pain experiences are determined through the person's sensation, thought, and feelings. The pain experiences are expressed or revealed in verbal, nonverbal and physiological forms. Pain experience and expression are influenced

by intra-personal factors such as personal history and biological nature and interpersonal factors which involves the person's relationship with his/her environment (Craig 2009).

Pain assessment under the caregiver can be done by a healthcare professional, family member or any person in the position to alleviate the pain of the affected person. Pain assessment is influenced by intrapersonal factors such as the caregiver's knowledge, sensitivity, biases of pain and interpersonal factors like the relationship between the person in pain and the caregiver (Craig, 2009). The model demonstrates the dependency of pain management on pain assessment through decoding the pain expression of the person in pain (Craig, 2009). Pain management is achieved through pharmacological and nonpharmacological approaches and it is influenced by intrapersonal factors such as personal judgement to react to the person in pain, professional training and interpersonal factors like the settings and the social context (Craig, 2009). The model is illustrated in Fig 2.1 below.



Source: Craig, 2009

Figure 2.1: The Social Communication Model of Pain

The researcher only used the caregiver aspect of the social communication model of pain to explore pain management as the focus was on the nurses as caregivers. As a result, the constructs under the person in pain were not considered in this study. The first objective was derived from the two main constructs of the model on pain assessment and management. The second objective on personal pain experiences was from the minor construct on sensitivity, biases and knowledge of the caregiver. The third objective used the clinical setting construct to identify institutional factors influencing pain assessment and management.

2.2 Review of Related Literature

Literature is reviewed based on the constructs of the model and the objectives.

2.2.1 Nurses Knowledge in Assessment and Management of Pain

Nurses' knowledge level on pain assessment is essential for the management of patients' pain. (Gretarsdottir, Zoega, Tomasson, Sveinsdottir, & Gunnarsdottir, 2017). The nurse should be abreast with the various pain assessment tools and the appropriate use of each to the specific situation. Nurses with deficit knowledge cause more harm than good in the management of patients' pain. (Al Qadire & Al Khalaileh, 2014; Alqahtani & Jones, 2015; Duke, Haas, Yarbrough, & Northam, 2013). Pain intensity is mostly the common uni-dimensional self-report assessment tool used clinically (Gregory & Richardson, 2014), which includes the Visual Analogue Scale (VAS), Numerical Rating Scale (NRS), Verbal Descriptor Scale (VDS), Numerical Descriptor Scale (NDS) and the Wong-Baker smiley faces (Hjermstad et al., 2011). Multi-dimensional self-report tools such as McGill Pain Questionnaire (MPQ), Brief Pain Inventory (BPI) and the Pain Disability Index (PDI), gives a broader view on the site and intensity of pain and its effect on the patient. As the self-report scales require adequate mental ability to understand and describe the obnoxious feelings (Lukas, Niederecker, Günther, Mayer, & Nikolaus1, 2010; Ruder, 2010).

Behavioural assessment tools such as Critical Care Pain Observation Tools (CPOT) and others are also used to evaluate pain of patients who cannot describe or rate their pain.

Booker and Haedtke, (2016) indicated that acute pain can be verbalized through crying, shouting and screaming for help, moaning and reporting the presence of pain. Self-reports of the presence of pain have been considered to be among the most accurate and reliable means of assessing the presence and intensity of pain (Horgas, 2017). The use of gestures, facial expressions, frowning, clinching on teeth, restlessness, rubbing of the site of pain, and restriction of movement have also been identified as some nonverbal expressions of pain (Booker & Haedtke, 2016; Rowbotham, Wearden, Lloyd, & Holler, 2013; Stanley & Chinwe, 2016). It has also been established in other studies that facial pain assessment has clinical value especially for non-verbal communicating patients (Rahu et al., 2013; Sheu, Versloot, Nader, Kerr, & Craig, 2011). However, other studies revealed that variations in individual's facial features and appearances such as shape of face and hair distribution may significantly affect facial assessment of pain (Christofollet1, Oliveira, & Siqueira, 2018; Rahu et al., 2013). The presence of pain has also been associated with physiological changes (Booker & Haedtke, 2016) and at the emergency care units vital signs are used as physiological indicators of pain (Horgas, 2017). Some physiological changes that may be indicative of pain were found to include elevated heart rate, increased blood pressure and increase tissue perfusion (Kaplow, 2015; Sacco et al., 2013). Şimşek, Şimşek, and Cantürk, (2014) indicated that endocrine, metabolic and immunological changes are affected by physiological response to trauma. The release of these hormones produces adverse effects such as tachycardia, tachypnoea, and fever. However, Herr, Coyne, Mccaffery, Manworren, and Merkel, (2011) had a contrary view that these parameters of pain may not be reliable indicators of the presence of pain but may serve a guide to assess for pain.

Studies conducted on knowledge of pain in some countries using the Knowledge and Attitude Survey Regarding Pain (KASRP) revealed good results indicating nurses having adequate knowledge of pain. Studies conducted in the United States of America with 91 perianaesthesia respondents indicated 76% mean score (Burns et al., 2010), 35 nurses with oncology certificate had a mean score of 77.5% and 58 nurses without oncology certificate scoring 72.5% (Coleman et al., 2008). And some other studies from Ireland and Great Britain on nurses also recorded mean scores greater than 70% (Buckley & Andrews, 2011). However, similar studies conducted in other countries revealed inadequate knowledge of nurses in pain. For example, 211 Jordanian nurses in a study had an average correct answer score of 19.3 (less than the passing score of 20) out of the 40 questions answered in the questionnaire (Al Qadire & Al Khalaileh, 2014). And in Saudi Arabia, the 593 nurses who responded to the KASRP questionnaire recorded 42.5% mean score of correctly answered items. It is worth noting that these studies did not relate the scores to educational level and years of experience.

Lui, So, and Fong (2008) studied the knowledge and attitudes regarding pain management among nurses in Hong Kong medical units. Their findings recorded prominent deficit in knowledge and attitudes towards pain management, however, those with a higher percentage of correct scores in NKASRP had longer clinical working experience and applied knowledge of pain to their daily work. Similarly, Tsai and Lin (2007) reported a mean score of 49% for Taiwanese nurses, which also was significantly positively correlated with years of experience. On the contrary, a survey by Wilson (2007) of nurses' knowledge of pain revealed that their knowledge scores were not associated with their years of nursing experience. This was also supported by Lewthwaite et al., (2011) as 49% of Canadian nurses received a total score of 80% or higher, with negative correlations among age and experience.

Standard practices emphasize the role of the nurse in ensuring comfort amidst painful experiences of the patient (Rose et al., 2012). This ensures that the nurse performs quality pain assessment, interventions, and evaluation in accordance with the patients' unique responses to pain. (Czarnecki, Turner, Collins, Doellman, & Wrona, 2011) Therefore, nurses should be knowledgeable in the required standards in pain management to appropriately and promptly plan and intervene to minimize pain. Nurses' knowledge of the principles of acute pain assessment in critically ill adult patients who can self-report as studied in Uganda. With 170 nurse participants, deficits in knowledge attributed to the lack of utilization of guidelines was 89% and lack of education was 79% on practice standards for pain assessment and management. The study also identified that pain assessment was among the least attended topics during continuous professional education (Betty, Kanaabi, Kohi, & Chalo, 2016).

Effective pain assessment guarantees better management of pain which ensures great relieve of the suffering patient. Pain relief could be achieved by the use of both pharmacological and non-pharmacological means. This is emphasized by the multimodal approach to pain management recommended by the clinical guidelines of the American Pain Society (APS) (Chou et al., 2016). Pharmacologic interventions are the cornerstone of pain management which includes local anaesthetics, nonsteroidal anti-inflammatory drugs (NSAIDs), acetaminophen, opioids, anxiolytics, and sedatives (Ahmadi et al., 2016; Dijkstra, Been, & van Dongen, 2014). Nonsteroidal anti-inflammatory drugs such as diclofenac, ibuprofen, ketorolac, and paracetamol are analgesics used to treat mild to moderate pain. Most of these analgesics are readily available and not under the controlled drug (Adam, Mrsic, Tonkovic, Rasic, & Matejic, 2013; Atchison & Herndon, 2013; Jalili, Noori, Sedaghat, & Safaie, 2016; Rasu, Sohraby, Cunningham, & Knell, 2013). However, other studies had shown that some NSAIDs delays healing of bones and wounds and

impedes coagulation in severe trauma (Carter et al., 2014; Su & Connor, 2013; Zhao-fleming et al., 2018). Opioids on the other hand identified as the analgesics used to manage moderate to severe pain which does not respond well to other pain medications (Metcalfe, Olufajo, & Salim, 2015).

The route of administration of pain medication is important since it affects the effective onset of the medication and adverse effect. Some studies conducted on both animals and humans found some preference for intramuscular opioids and its minimal manifestation of adverse effects (Giordano et al., 2010; Nota et al., 2015; Zhou et al., 2015). However, a study conducted in the UK found that intramuscular route has not proven to be a better alternative compared to other routes such as oral, intravenous, rectal and tropical (Snell & Hicks, 2006). This finding is also supported by the current practice guideline of the American pain Society (Chou et al., 2016) because intramuscular administration of analgesia has poor absorption and other clinical challenges. Oral medications of analgesics are also found to be employed in cases with mild to moderate musculoskeletal pain (Le May et al., 2017). Both therapeutic and adverse effects of the various types and forms of analgesia are considered in providing adequate pain intervention to the patients. The effects of some commonly used analgesia have been identified in some earlier studies (Carter et al., 2014; O'Neil, Hanlon, & Marcum, 2012; Richette, Latourte, & Frazier, 2015). Several factors should be considered when selecting appropriate pharmacologic agents for patients. (Srouji, Ratnapalan, and Schneeweiss (2010) emphasised pain intensity, age of the patient, accessibility to pharmacologic agents and techniques, and availability of skilled personnel to administer and monitor the effects of the selected pharmacologic intervention as important in factors in effective pain management.

A study done on nurses' knowledge and attitude regarding pain in Saudi Arabia indicated lack of knowledge in opioids (Eid, Manias, Bucknall, & Almazrooa, 2014). This

could be attributed to inadequate formal lectures on pain management as it is not an explicit subject taught at most medical and the nursing institutions (Lui et al., 2008; Motov & Khan, 2009; Sturesson, Falk, Castrén, Niemi-Murola, & Lindström, 2016). Another study conducted in five hospital emergency departments located in the Pacific Northwest region of the United State where no differences were detected in mean scores among age levels, years of experience, or education levels. The findings demonstrated that nurses in the study were mostly unfamiliar with topics related to opioids, including pharmacology and dependency or abuse (Moceri & Drevdahl, 2014).

It is also evidenced that the benefit of non-pharmacologic interventions to reduce pain is observed across all ages (Jain & Mills, 2010; Nilsson, 2008). Various non-pharmacological means to relief pain has been identified to include positioning, immobilisation, hot and cold applications, distraction, relaxation, acupuncture, exercise and reassurance (Aydemir, Aslan, Karabacak, & Akdaş, 2018; Do Rosário et al., 2013; Kannus, 2015; Martin, Davenport, Paulseth, Wukich, & Godges, 2013; Petersen et al., 2013; Sommerfeldt et al., 2015). Most of these interventions are done with equipment and materials such as arm sling, various forms of splint, bandages and hot water bottle (Sommerfeldt et al., 2015). Unfortunately, others (Alhani, 2010; Allred, Byers, & Sole, 2010; Demir & Khorshıd, 2010) demonstrated that these interventions such as relaxation techniques, meditation, imagery, massage, thermal measures, positioning, play activities, and music are often overlooked and underutilized by health professionals. The findings above indicate that adequate knowledge in pain assessment is essential to effective pain management using the multimodal approach.

2.2.2 Personal Pain Experiences

Individuals' perception and response to pain are often influenced by the cultural, social and ethical background. And the inferences of pain are related to learned behavioural

responses of a given culture or subculture (Holm, Cohen, Dudas, Medema, & Allen, 1988). Nurses' inferences of patient pain are also directly or indirectly influenced by their psychological characteristics and acquired beliefs about pain. Nurses may apply their knowledge on pain management to control their pain rather than seek medical attention (Aziato, Ohene, Dedey, & Clegg-Lamptey, 2016). According to Craig (2015) the easily identifiable sources of pain are referred to as nociceptive pain whiles neuropathic pain is due to damaged nerves which are normally not easily identified. Ciaramella (2017) has also suggested that pain is described to be acute when the onset is sudden and sharp and the duration does not exceed 3 - 6 months. Acute pain is also relieved when the underlining cause is no more present. Chronic pain, however, is considered as persistent or recurrent pain which lasts more than 3 months and it impedes activities of daily life and participation in social roles (Ciaramella, 2017).

Patient satisfaction is significantly dependent on meeting or exceeding their expectations of pain relief. This is achieved when caregivers have adequate knowledge to assess pain and give appropriate pan intervention promptly. In a qualitative study by Pathmawathi et al. (2015) in Malaysia, palliative patients considered health care providers as insensitive to their breakthrough pain. The patients indicated that the doctors and nurses were rude and impatient when attending to their pain. It was also found that healthcare professionals did not consider the special needs of children when managing the pain of paediatric patients during pain assessment and management (Rad, Sayad, Baghaei, Hossini, & Salahshorian, 2015). In Ghana, Aziato et al. (2016) used an interpretive qualitative approach to explore surgical nurses' personal pain experiences to gain an understanding of their lived pain experiences. The nurses in pain expected effective pain management that would relieve them of their pain experiences. And according to Bozimowski (2012) his study on patients perception on pain management therapy in a surgical unit in Michigan

concluded that the most commonly prescribed therapies may not be the ones that satisfy the patients. And the factors that affect the satisfaction of patients' pain management include proper education on pain and the type of treatment rendered.

Contrarily, some studies show that patients had satisfaction with their pain management. For example, in a 5-year comparative analysis of hospital consumer assessment on patient perception of pain care in the United State revealed patients' satisfaction with pain management received in both private and government hospitals (Gupta, Lee, Mojica, Nairizi, & George, 2014). Ramia, Nasser, Salameh, and Saad (2017) investigated patient perception of acute pain management involving maternity and orthopaedic patients in a three tertiary hospital in Beirut, Lebanon found patients rating their satisfaction for pain treatment as strongly satisfied. In a mixed-method study in Sweden patients' and nurses' perception of pain management in the emergency department also indicated adequate satisfaction by both patients and nurses in the use of nurse initiated pain protocol.

Qualitative research conducted in Northern Greece which sought to gain insight into the ways personal experience of pain affects the attitudes of health care providers (Pediaditaki, Antigoni, & Dimitrios, 2010), found that caregivers became more sensitive to issues of pain and understood patients' needs during pain experiences. Holm et al. (1988), conducted a quantitative study in Chicago to determine the effect of nurses' personal pain experiences on the assessment of their patients' pain. A total of 134 nurses consisting of 132 females and 2 males participated in the study. The findings indicated that the assessment of a patient's pain is significantly influenced by the nurse's personal pain experience. Caregiver experiences of pain may also influence their responses to pain (Brunier, Carxon, & Harrison, 1995). Evidence among oncology nurses suggested that nurses' previous experiences of pain might improve their pain management for their patents as a result of

personal sensitization to pain (Dalton, 1989). Thus, nurses who have experienced intense pain are more sympathetic to patients in pain and would likely give prompt intervention to patients.

2.2.3 Institutional Factors Influencing Pain Assessment and Management

Abdalrahim, Majali, and Bergbom (2010) strongly suggest that knowledge alone is insufficient to improve practice if it is not related to workplace changes that give nurses the authority to utilize that knowledge. Institutional culture, therefore, needs to place an important priority in the management of pain to achieve a desirable effect on pain management (Glynn & Ahern, 2000; Rejeh, Ahmadi, & Mohammadi, 2009). The importance of availability of medical staff has been emphasized to accelerate the management of pain in patient (Aziznejadroshan, Alhani, & Mohammadi, 2017). According to Shindul-Rothschild, Flanagan, Stamp, and Read (2017) adequate nursing staff is highly predictive of patients' perception of pain management. It is therefore essential to provide enough nursing staff at the emergency units to meet the increasing demand of patients' needs which includes pain. Poor staffing may lead to rationing of care which could worsen the pain and extend the period hospitalization and risk of death (Motov et al., 2018).

Health workers with adequate knowledge and skills in pain management can provide effective pain relief to patients. Training in pain assessment and management should be a priority. A study conducted in Central Africa among emergency nurses revealed that nurses showed inadequate knowledge resulting from lack of training in pain assessment and management (Rampanjato, Florence, Patrick, & Finucane, 2007). Furthermore, training empowers nurses with the requisite knowledge and skills and makes them aware of the various pain assessment tools and appropriate use of these tools (Gregory & Richardson, 2014; Ruder, 2010). Training in pain assessment and management is indicated to yield better outcomes in the treatment of pain (Nuseir, Kassab, & Almomani, 2016; Silva, Pimenta, &

Cruz, 2013). Additionally, inadequate training imply that the workforce would lack suitable up-to-date knowledge, skills, and abilities to effectively manage pain among causalities. Ahmed et al. (2016) therefore recommend the incorporation of periodic training in pain assessment and management for emergency nurses to enhance effective pain management.

Apart from training, logistics are critical to pain management. Opioids are recommended for the treatment of moderate to severe pain. However, it was indicated in WHO (2010) report that over 150 countries do not have access to morphine and some strong opioids. Limited access to opioids renders the treatment of pain of casualties ineffective. Similarly, a poorly structured working environment affects decent work. The ILO (2018) indicated that people seek to have not just a job but a good working environment. One which is well structured, spacious and ventilated since a good working environment promotes health and safety.

Lauzon Clabo (2008) used a social group framework in an ethnographic exploration of two nursing units within a hospital, investigating pain assessment practice. She described nursing practice as being shaped by the field in which it occurs. Findings from the study indicated that while the 'field' was similar in the two units, each unit had clear but different patterns of pain assessment. Nurses' assessment of patients' pain on one unit was largely grounded in the patient's type of operation. Pain assessment on the other unit primarily used the patient's self-report as the source of knowledge about their pain. In each unit, a clearly defined culture of pain assessment was seen. This culture ensured the pain assessment behaviours followed the norms of the culture, and these cultural norms were maintained by the nurses working within that culture (Lauzon Clabo, 2008).

CHAPTER THREE

METHODOLOGY

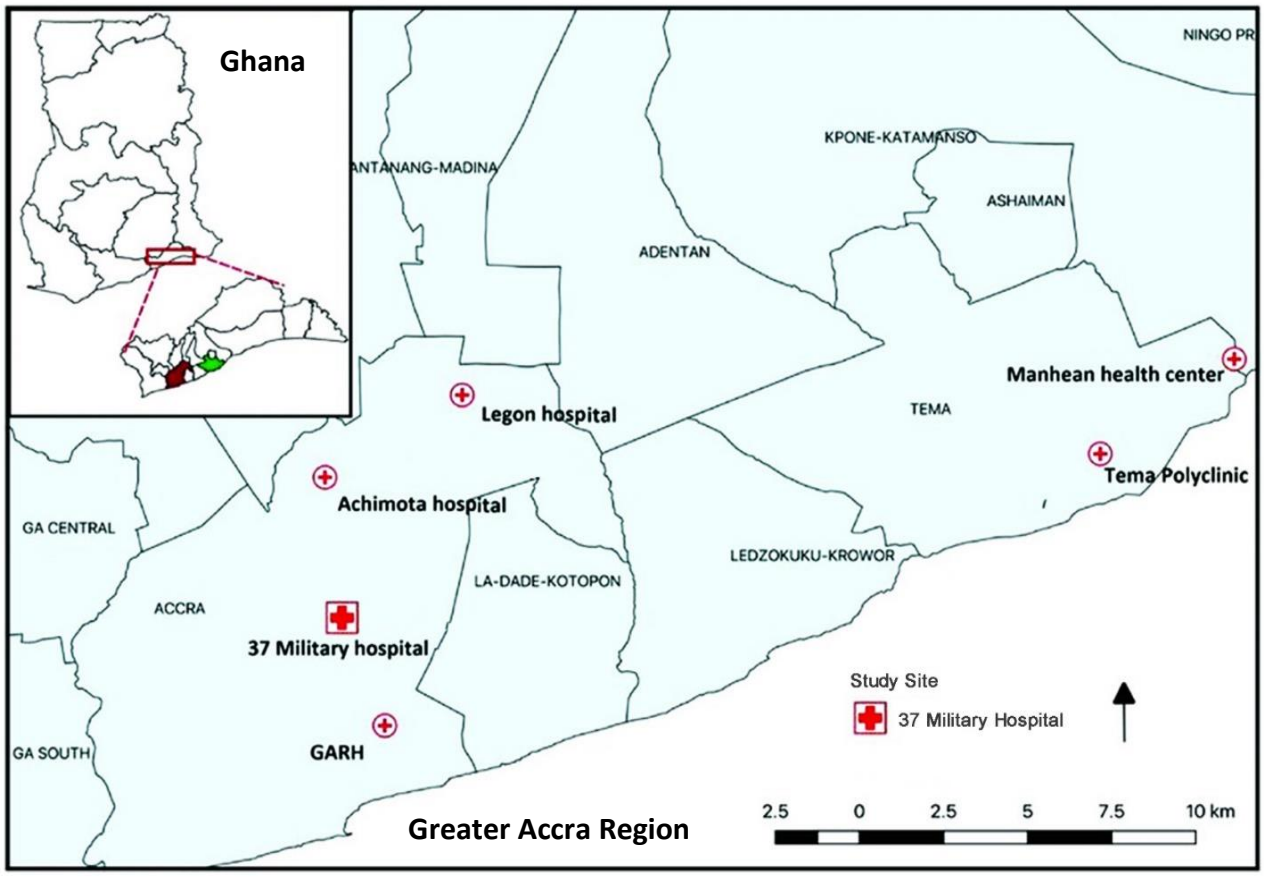
This chapter entails the processes that were used in conducting the study. It is aimed at explaining the research design and methods employed in the study. As the study seeks to explore pain management by nurses among road traffic accident casualties, the chapter included a description of the research design, the research setting, the target population, inclusion and exclusion criteria, sample size and sampling technique, data collection tool and procedure as well as data analysis. The chapter concluded with methodological rigor and ethical considerations of the study. A qualitative research method was used to explore pain management by nurses among road traffic accident casualties at the 37 Military Hospital emergency unit.

3.1 Study Design

An exploratory descriptive design was used for the study. According to Moen and Middelthon (2015) using exploratory design makes it flexible enough to aid the discovery of the perspective of participants on the phenomenon. The design is used when the aim is to determine the meaning of a phenomenon through description. It focuses on developing concepts that help in the understanding of the natural phenomenon and emphasizes the meaning, experiences, and views of participants (Al-Busaidi, 2008). The design helps to draw together adequate data which is useful to the researcher (Leppink, 2017). The researcher used the design to explore and describe the management of pain by nurses among RTA casualties at the 37 military hospital. The design assisted the researcher to acquire in-depth knowledge about the phenomenon under study.

3.2 Research setting

The study was conducted at the 37 Military Hospital of the Ghana Armed Forces in Accra. It was established in 1941 by the British colony as the 37th military hospital to give treatment to wounded colonial soldiers during the Second World War. The hospital had undergone various expansion after the war and independence and now has become a quasi-governmental and a specialist hospital which takes care of soldiers and their families, retired soldiers, civilian employees and their families for free and also opened to the general public for fees. It is also the National disaster hospital and a United Nation Level IV hospital. Its Trauma Surgical Emergency Unit is the first point of call to all surgical emergencies of which RTA casualties are inclusive. The TSEU has a capacity of 38 beds with three (3) cots for babies and 12 stretchers which are mainly used as a supplement at the triage area. The TSEU has three cubicles which hold stable casualties for about 72 hours before trans-out to the surgical wards or discharged home. It also has a triage area with two emergency resuscitation rooms and an operating theatre. Both military personnel and civilian employees work in harmony in the various department and units. Figure 3.1 below shows the map of Greater Accra Region and 37 Military Hospital in Ghana.



Source: Nuvey et al. (2018)

Figure 3.1: Map of Greater Accra Region showing 37 Military Hospital.

3.3 Target population

The target population studied were all nurses who worked at the trauma surgical emergency unit of 37 military hospital.

3.3.1 Inclusion Criteria

The inclusion criteria for the study were all Registered Nurses working at the trauma surgical emergency unit for at least a year at the 37 military hospital. It is assumed that within one year a nurse in the unit would have interacted with casualties.

3.3.2 Exclusion Criteria

The exclusion criteria were all Registered Nurses doing National Service and Health Care Assistants (HCA). The training of HCA is assumed to be narrow in scope and limited

in pain management. And therefore HCA may lack the necessary skill and knowledge required for pain management.

3.4 Sampling Method

The participants of the study were purposively selected. This sampling approach enabled the researcher to recruit participants who voluntarily participated in the study and provided in-depth information on pain management among RTA casualties. According to Creswell (2007) purposive sampling involves the researcher selecting participants and sites that can purposefully inform an understanding of the research problem. The trauma surgical emergency unit of 37 military hospital was the outlet for the research. Permission was sought from the hospital authorities and authorization letter (Appendix B) was issued by the hospital's research unit to permit the researcher to access the recruitment site. The researcher visited at their morning meeting and explained the purpose and objective of the research to the staff after seeking permission from their head nurse. Nurses who met the inclusion criteria and agreed to participate in the study were enrolled into the study after obtaining their consent. The consent forms were given to the participants ahead of data collection to allow them sufficient time to decide their participation and those who agreed to participate were then requested to sign a voluntary agreement form (Appendix D) and enrolled into the study.

3.5 Sample Size.

The determination of the sample size was informed by data saturation where no new information is forthcoming (Houghton, Casey, Shaw, & Murphy, 2013). According to Trotter (2012) sample size of qualitative research is achieved when the researcher does not elicit any new views or ideas from participants. This meant that the researcher continued to interview the participants of the study until significant new information ceased to emerge, which was after interviewing the thirteenth (13th) participant.

3.6 Data Collection

Semi-structured interviews were employed to gather data for the study and this enabled the researcher to administer the interview in an organized and more comprehensive manner (Al-Busaidi, 2008; Hyland, 2016). A semi-structured interview guide was formulated following the objectives of the study (Appendix E). The interview guide consisted of section A and B. Section A was on the demographic data of participants and Section B contained the main interview questions. Participants were encouraged to answer the questions as they wished but were not obliged. Participants were free to quit the study or refuse to answer questions considered to be sensitive to the institution or personal image.

The interviews were conducted in English as it is the official medium for formal education in Ghana. A good English background is a prerequisite for nursing training, making all Registered Nurses capable to express themselves in English. The interview was a face to face interaction between the researcher and the participants at the participants' convenient time and place and lasted between 40 to 73 minutes. The researcher took audio recordings with permission from participants and field notes which captured detailed participant responses to guarantee accurate and rich data for analysis. Flexible open ended questions were employed and responses of participants were further probed or redirected where necessary, during the interview, to ensure that adequate and detailed responses were elicited from participants (Hyland, 2016).

3.7 Piloting of the Instrument

Pilot interviews were conducted with two (2) presumed participants from the accident and emergency centre of Tema General Hospital. This helped determine the clarity of the semi-structured interview guide and enabled the researcher to make the necessary corrections before the start of actual data collection. This also served as a mock

administration of the instrument which contributed to enhancing the interviewing skills of the researcher for the actual data collection.

3.8 Data Management

Participants were labelled as EN1, EN2, EN3… in order of their recruitment into the study and their audio recorded interviews were transcribed verbatim. The interview materials (CD and transcripts) are kept separate from the demographic information sheets of participants under the researcher's strict custody with limited access to it by only the researcher and his supervisors. The data would be stored for a minimum of five years after completion of the study before destroyed.

3.9 Analysis of Data

Qualitative data analysis is the act of making sense of data by immersing oneself into it through an iterative process (Hanson, Balmer, & Giardino, 2011). The rationale for data analysis in qualitative research is to analytically transform large amount of text into well organized and concise summary for results (Erlingsson & Brysiewicz, 2017). In this regard, the researcher analysed data manually and concurrently using the process of thematic content analysis. The researcher started examining the data with the first interview. At the end of each interview, the researcher transcribed verbatim the audio recording of the interview. The accuracy of the manual transcripts was verified by reading over and at the same time listening to the audio recordings. After all audio-recordings had been transcribed, the data was then analysed using thematic content analysis. Thematic content analysis is a method of identifying, analysing and reporting themes within data. It serves as a flexible and valuable research tool which can potentially provide a rich and detailed account of data (Braun & Clarke, 2014). The intention behind content analysis is to describe the characteristics of the document's content by examining what was said and its effect (Braun & Clarke, 2006). In line with prescriptions by Erlingsson and Brysiewicz (2017) the

researcher read each transcript several times to gain an understanding of the whole and be familiar with the content of the transcript. Similar ideas, thoughts, and words within the data were searched for while the transcripts were read and grouped into meaning units as codes. All transcripts were managed in this same manner, and new codes that emerged during the process were added. During the coding, the relationships between the codes were analysed and similar codes grouped into themes and sub-themes.

3.10 Methodological Rigour

Rigour in qualitative research is the measure for the trustworthiness of data collection, analysis, and interpretation which is often compared with reliability and validity in quantitative research (Prion & Adamson, 2014). Several concepts have been cited in literature as the most important criteria for establishing rigour (trustworthiness) in qualitative research. Lincoln and Guba (1985) have suggested credibility, transferability, dependability, and confirmability as the criteria for establishing trustworthiness of a qualitative study. The researcher adopted the strategies below to ensure trustworthiness of the study.

Credibility looks at how true the study is and the subsequent interpretation of the data (Prion & Adamson, 2014). To attain credibility in this study, the researcher ensured that only participants who met the inclusion criteria were recruited to participate in the study. Also, a field diary was maintained to keep track of all nonverbal communications of participants as well as the researcher's experiences in the field. During the study, member checking (Creswell, 2007) was applied where the researcher crosschecked with the participants to ascertain the veracity of claims attributed to them by the researcher and captured in the transcripts.

Transferability is the extent to which the findings of a study can be applied to similar settings or context (Cope, 2014). The researcher, therefore, achieved transferability by using

thick descriptions (Creswell, 2007) to give comprehensive accounts of study context, methodology, and data analysis in participant's language to enable readers to gain an insight of research participants' world. Also, an audit trail (Creswell, 2007) of events was kept, which contributed to arriving at decisions regarding the findings of the study.

Dependability is how consistent and reasonable the research can be when applied over time (Prion & Adamson, 2014). Dependability of the study was ascertained by detailed description of the sample, setting, methodology, and analysis. Each interview conducted was transcribed and analysed to arrive at themes and sub-themes. Dependability was further ensured through member checking (Creswell, 2007) where claims of participants' accounts were crosschecked to reconcile with what was documented by the researcher.

Confirmability is how the researcher prevents biases and remove assumptions (Murphy & Yielder, 2010). That is presenting the data as the participants provided without alterations. In an attempt to achieve confirmability of the study, the researcher sought to explore the factors that influence pain management by nurses of road accident casualties. To attain this, the researcher asked for clarification from participants on responses that were not too clear or ambiguous. Participants also went through their responses and they confirmed what they said. Data collection continued until it got saturated with no new ideas being elicited. Data was analysed from the information provided by the participants and was devoid of the researcher's biases and feelings.

3.11 Ethical Considerations

Ethical clearance was sought from the Institutional Review Board (IRB) of the University of Ghana at the Noguchi Institute of Medical Research (Appendix A). In addition to the above, an introductory letter was collected from the School of Nursing and Midwifery at the University of Ghana and taken to the study setting for permission. Authorization was obtained from the 37 Military Hospital through its institutional review committee before

commencement of the study (Appendix B). The researcher went to the study site and did self-introduction and explained the aims, benefits and potential risk to the participants at their morning meeting a week before the beginning of data collection. It allowed participants enough time to consider their participation and only those who consented were employed into the study.

Confidentiality of the study participants was ensured by assigning each participant with a code (EN1, EN2, EN3 ...) in order of their recruitment into the study and was used when quoting participants in the findings chapter or any publications. Participants were assured that all interview materials including; audio recordings, transcripts, and consent forms would be kept under the researcher's custody with limited access to it by only the researcher and his supervisors for five year. Participants' demographic characteristics were however separated from these documents, and the soft copies of the transcriptions were kept in a pass-worded folder on the researcher's hard drive for safe protection of data. Participants of the study were also informed on their right to withdraw from the study even after consenting without any consequences. The participants had the freedom to decline to answer questions they considered very sensitive or seek clarification about anything regarding the study. Participants in their narrations did not experience any distressing emotions hence, the researcher did not refer any of the participants to a counsellor or psychologist. Participants were assured of anonymity during future publications of any aspect of the study.

CHAPTER FOUR

FINDINGS OF THE STUDY

This chapter presents the findings of the research which explored pain management by nurses among road traffic accident (RTA) casualties. The main purpose of the research was guided by an aspect of the Social Communication Model of Pain by Craig (2009). Based on the adopted sections of the social communication model four objectives guided the study. The findings is organised under the sections below

4.1 Description of the Study Participants

The study population consisted of thirteen (13) participants out of which seven were males. Eight (8) of the participants were military personal and five (5) were civilians. Their ages ranged between 28- 45years and all participants had tertiary level of education. Six (6) participants were Nursing Officers, three (3) Staff Nurses, and three (3) Senior Nursing Officers with one (1) Principal Nursing officer. Their years of nursing experience ranged between 4 - 22years whiles years spent at the Trauma Surgical Unit was between 1- 9 years. Eight (8) participants were married and seven (7) of them had children. None of the participants had any form training in pain assessment and management after nursing school. Participants' biographic data is attached as Appendix F.

4.2 Organization of Themes

Using thematic content analysis, four (4) major themes, thirteen (13) subthemes and six (6) sub subthemes emerged from the study. The first two major themes were from the constructs of the social communication model of pain which guided the study. The last two themes emerged from content analysis of the data. Details of the major themes and subthemes are presented in table 4.1 below:

Table 4.1: Themes and Sub-themes of the study

Themes	Sub-Themes
1. Nurses' Pain Assessment of Casualties'	• **Verbal Expression** • **Non-Verbal Expression** • **Physiological Change**
2. Nurses' Pain Management of Casualties	• **Pharmacological** • **Non-Pharmacological**
3. Personal Pain Experiences	• **Type of pain** • **Perception towards pain managed** • **Influence on pain management**
4. Institutional Factors Influencing Pain Assessment and Management	• **Staffing** • **Training** • **Protocol** • **Logistics** • **Working space**

Exploring the research question one: "What is the knowledge of nurses in the assessment and management of pain of road traffic accident casualties?" Two major themes emerged as nurses' pain assessment of casualties and nurses' pain management of casualties.

4.3 Nurses' Pain Assessment of Casualties

Participants described the various processes through which road traffic accident (RTA) casualties' pain were assessed. All participants described how pain assessment aided in adequate pain management of RTA victims. The participants narrated the different ways

casualties expressed pain experiences. Others exhibited nonverbal expressions to demonstrate their pain experiences. Some participants indicated that physiological changes in casualties also gave clue to assess for pain. The sub themes that emerged from pain assessment include; verbal expression, nonverbal expression, physiological changes and pain severity.

4.3.1 Verbal Expression

All the participants narrated that conscious victims of RTA often complain of pain to staff. During assessment the victims are able to describe the pain in words the severity of pain, the location of pain, and the nature of the pain.

> "*In most cases you hear them shouting, I am in severe pain and they mention the part of the body which sustained the injury, either the head, neck, arm or leg*" **(EN5)**

> "*Some patients will call you, aunty nurse, please my leg is paining me, I am dying, to indicate how unbearable the pain is*" **(EN4)**

According to participants, mostly painful experiences were communicated with some sounds rather than words. For example, a patient in extreme unbearable pain may cry, moan and shout.

> "*Some make sounds to indicate their pain, they will be moaning, groaning, crying, and shouting to make you aware of their pain*" **(EN1)**

> *"Some of the casualties wail and groan when you touch the injured part during examination*" **(EN2)**

As indicated in the quotes above, verbal expressions of pain was in words and sounds with both communicating unique meanings to the staff.

4.3.2 Non-verbal Expression

Participants reported that casualties often show some gestures, which are unique to pain experience. These clues could be seen in both conscious and unconscious patients. Typically almost all the participants identified facial expression, together with clinching teeth as gestures that most casualties express pain. Some indicated that RTA victims frown their face in response to pain.

> "*Most RTA casualties squeeze their faces on arrival (laughing) yes that is a sign of pain because if the person is not in pain there will be no squeezing of face. And when the affected part is touched during examination, such facial expression is shown" (**EN4)***

> "*… We take into account facial expression which involves patients frowning, closing the eyes and clinching the teeth.*" (**EN9)**

Others indicated that some casualties physically guard against the site of the pain. Also general body composure that shows lack of interest in the surrounding is another way pain is assessed. Participants said that the show of apathy to the happenings around casualties and unresponsive attitudes during interactions are gestures of pain.

> "*Sometimes during physical examination some casualties avoid certain manoeuvres which might cause pain"* **(EN3)**

> *"Some casualties remain calm and very quiet in bed when in pain, and may not even respond to questions from health care providers*" **(EN10)**

Some participants noted that some RTA casualties become restless and sometimes hold on any available objects firmly. The force and pressure exerted in the grasp of other objects communicate the severity of pain.

> *"You will see some casualties holding firmly onto their bed or stretcher*" **(EN5)**

> *"There are others who will keep turning in bed such that when cautioned to remain calm to avoid falling off their beds means nothing to them until analgesics are administered"* **(EN7)**

Non-verbal expression of pain could be shown in various facial expressions, body composure and some mannerisms which indicate the severity of pain experience.

4.3.3 Physiological Changes

The findings show that participants were aware of some physiological changes that are elicited as a result of pain. Some of the participants indicated the abnormal vital signs readings associated with pain in injured patients. According to many, these changes are valuable in assessing pain in unconscious and unresponsive patients.

> "'*When there is high pulse and high blood pressure, it may indicate pain in the victim, and so when the vitals are high we suspect pain even if the casualty is calm and doesn't seem much injured* " **(EN2)**
>
> "*When they are in pain, physiologically their vitals are out of the normal range, we consider casualties' elevated pulse, respiration and BP in assessing their pain situations*" **(EN5)**
>
> **"***We normally attribute increased pulse rate and high BP to painful experience if such increase has nothing to do with hypertension and excessive loss of blood*" **(EN9)**

A few participants revealed that pain cause profuse sweating and restlessness in some RTA casualties.

> *"… You also see some of them moving and turning in bed to adopt a comfortable position to reduce the pain they are experiencing*" **(EN11)**
>
> *"Some patients will be sweating profusely, panting and complain of palpitations and chest pain and all these should tell you the patient is in pain"* **(EN13)**

In view of the above, signs of physiological changes such as abnormal vital signs figures and profuse sweating are suggestive clues during pain assessment.

4.3.4 Pain Severity

According to participants in this study, assessing the severity of pain is key to effective pain management. Most participants assessed the casualties' pain severity individually by recognizing what patients said they felt.

> *"Apart from the patient's personal judgement, which may indicate that it is very painful or unbearable, I don't use my discretion to determine the level of pain unless in situations where the patient is semi-conscious or unconscious"* **(EN9)**
>
> *"Pain is individualised during assessment. My response to pain might be different from others response to pain, so I won't say because the patient is not making noise therefore not in pain"* **(EN4)**

It was evident in their narration that assessments for severity enable them to give appropriate treatments.

> "*In assessing the severity of the pain, if the person is able to voice it, then you can ask the person to rate it between 0-10 on a rating scale then the person can tell you my pain is rated this or that then you will know what kind of drug to give*" **(EN3)**

It was evident that using pain rating scale was a usual practice. All the participants reported the awareness of some of the existing pain rating scales, however, no pain rating scale was being used at the department at the time of this study.

> "*There is no printed out document that we use aside the triage sheet which has a column to tick that the person is in pain as part of triaging the patient to note how urgent the person need to be treated on arrival. But we don't have a printed out pain rating scale*" **(EN3)**

> "*No, we don't have anything of that sort .errrrr. But I read there are chats which are used to assess pain but we assess pain basically by observing the patient*" **(EN8)**

It was revealed that health professionals hold different perceptions regarding patients' pain experiences. For example, some participants said it is possible that some patients fake their pain severity to receive their preferred treatment or medication.

> "*Because some patients have fore knowledge and want an injection may rate their pain as 8 though the pain may be 4. Through the facial expression and the behaviour you may know that the pain is not that severe as the patient might claim even though pain is subjective"* **(EN9)**

A participant was of the view that documenting the pain on the rating scale would be time consuming and would affect rendering other nursing care to patients.

> "*Ideally (laughs) we are supposed to use it but in the setting where we found ourselves with a lot of patients to take care of everyday. We can even have more than 40 casualties. So just imagine if every cubicle has about 10 patients (laughs), using the pain rating scales for rating pain for each of them and in addition to other nursing activities, then we will not even finish or even go home (laughs*)"**(EN6)**

4.4 Nurses' Pain Management of Casualties

Pain management of RTA victims was of much concern to all the participants as it was the main reason to seek medical attention. Participants exhibited knowledge in the use of drugs to alleviate the pains of RTA casualties. Most of the participants also described other ways of reducing the pain for casualties that reported with RTA injuries. The

subthemes that emerged under this theme were pharmacological and non-pharmacological means of pain relief with their respective sub-subthemes. The sub-subtheme under pharmacological management of pain included type of analgesics, drug administration and effects of analgesics. The non-pharmacological sub-subthemes include immobilization, positioning and reassurance.

4.4.1 Pharmacological Management

Pharmacological means of pain relief was reported by participants as the first choice for pain relief in RTA injuries. Pain medication is administered to all casualties with injuries who reported at the emergency unit.

> "*The first thing we normally do is to give a pain medication. Mostly it is pharmacological methods that we use and also add reassurance that the pain will soon subside"* **(EN1)**

> **"***Most of them, especially those with injury, we give all of them pain medication. Including people who cannot talk. I give IM diclofenac 75mg start"* **(EN8)**

4.4.1.1 Type of analgesics used

The available analgesics used to treat mild to severe pains included non-steroidal anti-inflammatory drugs (NSAIDs), anti-pyretic, mild and strong opioids.

> *"... The available drugs we use here are mainly, diclofenac, tramadol and pethidine"* **(EN3)**

> *"After rating the pain the basic drugs we use include paracetamol, diclofenac, tramadol, pethidine and morphine. The choice of drug depends on the outcome of your pain assessment.*" **(EN13)**

> *"The pain killers I made mention of includes diclofenac, hydrocodeine and also pethidine to take care of severe pain*" **(EN5)**

Some participants indicated combining different analgesics to achieve effective pain relieve for casualties. This included the use of adjuvants such as sedatives and muscle relaxants.

> "*Sometimes we give combine therapy drugs, diclofenac with tramadol, paracetamol and pethidine*" **(EN13)**

> "*We sometimes add sedatives like midazolam to the diclofenac to make them relaxed even though it is not a pain killer. Because some patients come very apprehensive and scared at the sight of their blood and injury*" **(EN11)**

The participants used the severity of pain of the casualty to determine the choice of analgesia to administer. The choice of medication is made in consultation with the doctor.

> "*We give analgesia ranging from diclofenac, tramadol and pethidine. So depending on the severity of the injury determines the type of analgesia to give, and it is done in consultation with the doctors to choose the best analgesia for the patient"* **(EN10)**

> "*Looking at the severity of the pain determines the type of medication I should give. For instance if somebody comes with shoulder dislocation and you give diclofenac it will not be effective you have to go for something higher. Somebody comes with open fractured tibia, fibula or femur and you give diclofenac, diclofenac will not work so you have to go for a stronger one* **(EN6)**

> "*Those who come with minor abrasions or little cuts are put on oral analgesia such as paracetamol and diclofenac and discharged home after a period of observation*" **(EN2)**

The above narrations showed that various forms of analgesics were used in the treatment of pain. These analgesics ranged from anti-pyretic, non-steroidal anti-inflammatory drugs and opioids. Some adjuvants such as sedatives and muscle relaxants are also used to augment pain relief.

4.4.1.2 Administration of drugs

Participants explained that administering prescribed analgesics to patients was their responsibility and indicated the use of injections often:

> "*Mostly the drugs used are intramuscular and the intravenous route. We normally use IM mainly for diclofenac and pethidine and intravenous for paracetamol*" **(EN5)**

> *"Most of the medications are given intramuscular. The injections that are given intramuscularly include diclofenac, tramadol and pethidine. But if the pain is too much and we think the person needs it very urgently, pethidine can be given intravenously*." **(EN3)**

Participants also indicated that casualties who present with mild and sometimes moderate pain are given oral analgesics.

> "*Victims who report with minor injuries without internal bleeding and head injury are normally put on oral pain killers such as paracetamol, diclofenac and tramadol"* **(EN11)**.
>
> *"Casualties who walk in with little laceration and bruises are treated and discharged on oral analgesics"* **(EN9)**

Few participants mentioned delayed administration of opioids to patients as the opioids may mask the doctors' diagnosis.

> *"Sometimes pain medication like the opioids are not given for acute abdomen to avoid masking the doctor's judgement during clacking. So in cases like that we wait for the doctor to finish taking the history before administering pethidine"* **(EN10)**
>
> *"Mostly, administering pain medication to casualties who complain of abdominal pain are delayed until the doctor has finished his assessment and diagnosed"* **(EN 13)**

The nurses mentioned intramuscular as the main route for the administration of most analgesics.

4.4.1.3 Effects of analgesics

Analgesics are given to casualties to resolve or reduce pain to a bearable state. Casualties are expected to indicate reduction or absence of pain after administration of pain medications. Casualties may show relief of pain by calming down, relaxed, verbalising pain relief or vital signs being within normal range

> "*When we give pain medication, we expect the client verbalizing feeling better than before the medication. For example if the client was moaning or in the case of a child crying, they will remain calm and stop crying. Some of them even fall asleep indicating good effect of the medication"* **(EN7)**
>
> "*The very first expectation after giving the drug, is for the patient to be relieved of pain or at least the pain to subside"* **(EN2)**
>
> **"***We sometimes do not expect the pain to go totally but to reduce. And also the vitals to become normal when reassessed*" **(EN9)**

Participants also stated that they observe for side effects of analgesics such as rashes, respiratory distress among others after administering the drug. And possible side effects are managed if they do manifest.

> "*Ideally you should also look out for some of the side effect of the drug. As a nurse professional you should know the side effects of the drug so that you can observe for such side effects which may include rashes, spasms, rigour, profuse sweating, getting low BP and pulse, and respiratory distress*" **(EN7)**

> **"***We also look out for possible side effect of the drug. If there are any possible intervention are given as soon as possible"* **(EN2)**

The nurses observed for the signs of therapeutic effect of the medications to monitor and evaluate pain interventions. Adverse effect of drugs were monitored to render appropriate remedies if they should occur.

4.4.2 Non-pharmacological Management

Participants described various non-pharmacological methods that are used to assist in the reduction of pain for RTA casualties. Most of these included immobilization, positioning and reassurance.

> "*We manage the pain either by putting them in a comfortable position, apply splints or elevate the affected part depending on what is supposed to be done at a particular time*" **(EN5)**

> "*This mainly include positioning of the patient. Sometimes we immobilize with sand bags and elevate limbs with pillows to relief pain of fractured limbs"* **(EN8)**

4.4.2.1 Immobilization

Participants indicated prevented movement and supported fractured limbs with splints that was effective in the reduction of pain for accident victims.

> "*If it is fracture, we usually do splitting to immobilize the patient so that the pain will be lessened*" **(EN2)**

> **"***Sometimes when you immobilize the affected part, you realize that they feel comfortable*" **(EN4)**

Cervical collar was used for casualties suspected with C-spine injury and collar and cuff for clavicular fractures. The use of arms sling was indicated for dislocation of upper limbs.

> "*We have to immobilize them with the cervical collar. That is what we use in immobilizing the C-spine injuries. Even if it has not been confirmed, so far as it is an RTA and we suspect there could be C-spine injuries. We quickly need to apply one until the neurosurgeon examines and determines that the person has no C-spine injury*" **(EN3)**

> "*We also use collar and cuff for those who have clavicular fractures, and for dislocations we use arms sling to immobilize*" **(EN6)**

Most participants mentioned the use of improvised materials that helps in immobilization when the required ones are unavailable. This include the use of card boards, bandages and casualties' own clothing.

> "*When they come like that and the materials are not there, we use their shirts as support for their upper limb. We get it done by opening their buttons and putting their hands inside. For the lower limbs we use their cloth to tire their limbs and if the improvised splints are done then we take them off and use the splint then later they take them to the theatre for the actual reduction of the fracture*" **(EN5)**

> **"***There are various forms of splints for various part of the body but in our setting these type are very limited in supply so we often use card boards. That is also relatively hard so we use a soft band around it and secure it with a gauze bandage. Or in the absence of soft bandage then we have to use several of the gauze bandage*" **(EN7)**

The nurses used different means to immobilise fracture of casualties to help reduce pain. These include improvised materials such as cardboards and bandages

4.4.2.2 Positioning

Most participants indicated that putting the patients in a comfortable position minimizes their pain after sustaining a RTA injury.

> "*Sometime is just the position that is making the pain so severe. So if you put the person to a comfortable position, it may help to alleviate it*" (EN2)

> "*Sometimes depending on the position in which they are lying, some of the patients can even tell you to help them turn to the lateral position or other positions. So positioning is also an integral part of RTA pain management*." **(EN11)**

Comfortable position of casualties were achieved by the use of available materials such as pillows, infusion boxes to elevate limbs and support other body parts.

> "*We also use pillows to elevate and support the limbs and sometimes parts of the bed or stretcher to elevate the limbs if possible, that is adjusting the head or foot end of the bed to about 15 or 30 degrees to the patients' comfort*" **(EN13)**

> "*Sometimes RTA injuries on the limbs with pain and bleeding are elevated on pillows or infusion boxes depending on the availability. We sometimes hang the upper limbs on a drip stand after pressure dressing of the wound*" **(EN10)**

4.4.2.3 Reassurance

Most participants considered reassurance as important in the non-pharmacological management of pain for RTA casualties. The nurses indicated that reassurance calms the casualties and makes them feel they are in safe hands.

> "*You need to reassure the patients that he is now in the hands of a competent team of health workers and they will do their very best to treat him of whichever condition that he is in and so he needs to calm down and relax and with his corporation everything is going to be ok***" (EN2)**

> *"sometimes reassurance works like magic, that is just talking to them makes them feel fine and calm as they have the feeling that at least someone is concerned about them and would take care of their pain*" **(EN4)**

Some participants only regarded reassurance as a supplement to pain relief in RTA casualties and therefore reassurance on its own is not effective for RTA pain management.

> "*If the patient is in pain, you don't go reassuring but you need to administer some analgesia before reassuring him/her in addition. Mostly it is the drugs which are used first.*" **(EN1)**

> *"… Talking to the patient without analgesia does not work for normal RTA cases (laughing)*" **(EN7)**

Some participants stated that other forms of pain relief such as diversional therapy were not considered and used.

> "*I know of other non-pharmacological ones but we don't undertake them here. I know of warm and cold compress, but not for RTA pain management. And we can use the diversional therapy but we also don't use it here"* **(EN5)**

From the above narrations it is indicative that reassurance of RTA casualties in pain management supplements pharmacological means of pain relief.

4.5 Nurses' Personal Pain Experiences

The second research question focused on the personal pain experiences that influence nurses' assessment and management of pain of road traffic accident casualties. A major theme emerged, personal pain experiences, with three subthemes to answer this question. The subthemes were; type of pain, perception towards pain managed, and influence on pain management. Participants recounted their various pain experiences that they once had. All participants described the type of pain they had and how those pain were managed. Participants also indicated their perception about the management of their pain and how that had influenced their care for patients in pain.

4.5.1 Type of Pain

All the participants indicated experiencing some form of pain in their life. Some narrated more than one (1) pain experience.

> "*I experienced a cannula pain, its site was tissued and was so painful. And currently am having some throbbing pain under my foot, it is very painful*" **(EN1).**

> *"I experienced a very painful musculoskeletal pain after I had an accident. Sometimes after lifting patients, you get home and experience pain all over your body. The pain is sometimes very sharp in nature*" **(EN13)**

A few male participants also experienced painful injuries through playing football.

> "*Yes personally I had experienced some pain after playing football in my leg and arm. I had a dislocation and a cut which were very painful*" **(EN3)**

> "*It was a minor one but very painful. We had a football match and probably that might be the reason why I don't want to play football again. The opponent played the ball to hit my testis and straight away I went down on my knees and for about 5 days I was in an excruciating pains*" **(EN7)**

Other participants narrated their pain experience as related to a fracture pain, back pain and post-operative pain.

> *"I had a fractured finger and the pain was unbearable*" **(EN4)**

> *"I usually have this severe back pain especially after lifting patients or bending to pick something. It is very severe when present*" **(EN6)**

"*I experienced an incisional pain when I had surgery 2years ago*" **(EN11)**

However, two (2) participants indicated that they do not remember any severe pain experience.

> "*Well, I hardly go through severe pain. I don't remember going through severe pain. It may be some mild headache or musculoskeletal pain after some strenuous exercise*" **(EN2)**

> **"***Personally, I have not experienced any severe pain at all"* **(EN8)**

Most of the nurses had experienced some form of musculoskeletal pain resulting from fracture, dislocation, trauma and surgical incision. However two indicated not remembering any painful experience.

4.5.2 Perception towards Pain Managed

Participants had different views toward the treatments they had received for their prior pain experienced. The participants who had their pain managed at the outpatient department (OPD) basis felt their pain was ineffectively managed.

> "*I was seen on out-patient basis and was given a combination of tablets which I took as instructed but the pain was not going down. I was not happy because the pain I was going through compared with the drugs I was given were not working. The drugs were not working at all*" **(EN5)**

> "*The treatment I received was not good because he could have done something to relief me of my pain but he did nothing for me at the OPD***" (EN1)**

Other nurses who managed their own pain also think they did not treat their pain adequately.

> "*My own way of managing pain is not the best. I usually want to endure it, rather than taking the injection and hope it resolves. I usually only take the start dose*" **(EN6)**

> *"Although it was very painful I didn't want to use any pharmacological means to manage it. I used local application of ice packs, relaxation and diversional therapy. Even though the pain was there, watching football took my attention from the pain and as soon as the match is over the pain starts again"* **(EN7)**

A nurse on admission stated poor management of her cannula pain.

> "*It was not well managed for me, because they did not remove it to set a new cannula for me. It was hurting but because it was not swollen they only come and fidget with it and tell me it will flow. It was very painful*" **(EN1)**

However, a few other participants who were also admitted in the hospital indicated good management of their pain.

> "*During the admission period, my pain medications were administered and they helped to relief my pain"* **(EN11)**

> "*It was good during admission. Once you are able to get away the pain and you can go about your normal activities then it was good*" **(EN13)**

The accounts given by the nurses shows that their pain management was not satisfactory and expected better pain intervention

4.5.3 Influence on Pain Management

Most participants past pain experiences created an empathy and sympathy for patients in pain. The experience of undesirable pain by the nurses made them to respond promptly to patients in pain.

> "*Oh, it is not pleasant, nobody should be in pain. Pain is not good at all. What I go through under my foot, no one should be allowed to go through this. Every pain must be managed especially when it is verbalized. Pain is not good and it must be managed especially if you come to the hospital, the first thing that must be managed should be pain*" **(EN1)**

> *"Certainly yes, it has made me appreciate what others go through. It is said experience is the best teacher so now when someone tells me he/she is in pain, I understand the pain he/she is going through*" **(EN7)**

Some nurses appreciated individual pain threshold through their personal past pain experience. This influence the nurses to understand the uniqueness of others pain experiences. It also help the nurses to handle casualties' pain with much zeal towards its treatment.

> *"My pain experience has helped me to individualise the treatment of pain. So I handle every individual as a unique person because the way you react to pain will be different from the way any other individual will react to pain. So if someone verbalizes pain I handle it as emergency the same way I would like my pain to be managed*" **(EN4)**

> *"I realized that RTA victims are really in pain so we nurses have to do our best to take care of their pain"* **(EN11)**

> "*once you have experienced pain before, when the patient talks about it, you feel the need to intervene, so I would say I have felt it before so when I am managing pain I am very careful to render appropriate care*" **(EN13)**

Participants who stated no previous severe pain experience indicated they usually use narrated pain experiences of others.

> "*Sometimes I consider the pain someone has told me before and compare it with what is being said now. I cast my mind back on what others say and I use that to manage them*" **(EN8)**

> *"I observe others in pain and still learning from senior colleagues on the ward as well as from patients"* **(EN2)**

Some participants indicated that their previous pain experiences encourage them to give the appropriate type of analgesia for the right pain being expressed by the patients.

> *"It helps me to pay attention to their pain expressions and quickly administer diclofenac or pethidine to relieve their pain. Yes it really make me feel for people that are in pain*" **(EN3)**

> "*I at times blame the prescribers. You know that this pain is severe and you have given some pain medication but we are not achieving good results. So you wonder why they cannot use the opioids but rather continuously use the NSAIDs"* **(EN5)**

A nurse said the perception towards patients exaggerating their pains changed after going through a severe pain experience.

> *"I used to think some patient over exaggerate their pain. But after that accident and the pain I went through, I have stop doubting casualties expressing their pain"* **(EN6)**

The personal pain experience of the nurses have made the nurses understand and appreciate the pain of casualties. It has also made such nurse to give prompt attention to patients in pain

4.6 Institutional Factors Influencing Pain Assessment and Management

The nurses described some institutional factors that affect their pain management for RTA casualties. Participants talked about staffing which requires adequate hands to manage RTA victims' pain and requisite training that empowers the personnel to treat pain appropriately. Most participants mentioned that logistics play very important role for adequate pain relief. The need for standards operating procedures was also advocated for to enhance and automate early pain management of RTA casualties. The subthemes that emerged were staffing, training, logistics, protocol and working space.

4.6.1 Staffing

The nurses lamented a lot on inadequate staff at the unit, as the unit needed additional hands to adequately manage pain of the high turnover rate of RTA casualties. Limited staff on duty affects the quality of pain assessment which leads to poor and ineffective pain management.

> "*We basically and mostly work under-staffed, during an emergency or mass RTA you will expect that there will be enough staff to work but the nurse –patient ratio is very low, there is always limited personnel to attend to the needs of these victims. In such cases you will not be able to do proper pain assessment and manage well because you are under staffed"* **(EN13)**

> *"As for our staff strength it is something we have always complained about. I think if our staff strengthen is adequate our patients' pain would be better managed. You just saw someone walked all the way from the last cubicle to tell me he had an abdominal pain. If there was a nurse assigned to that cubicle … am sure that their pain will be better managed"* **(EN10)**

> *"The staff situation is always a challenge so sometimes you have to assess and be selective in choosing which patient to receive treatment first. The ones with more severe pain are those you attend to first before you attend to those with less severe pain and sometimes before you get to the less severe ones they also might be in severe pain and all these happens due to the delay in their treatment"* **(EN1)**

Some of the nurses also mentioned that inadequate personnel hindered proper monitoring and evaluation of pain management.

> *"Usually because of inadequate personnel, sometimes you don't have the time to stay around such patients to observe what is actually going on. You may leave and after 30minutes later before you may remember that you have given medication that you had to observe if the medication is effective or the patient is reacting to the medication. Because of inadequate staff the proper monitoring that we should do is not being done"* **(EN5)**

> *"Assessing the effects of analgesia and the pain of casualties is the best but we don't enough personnel on duty to do this monitoring"* **(EN9)**

Most nurses stated that the limited staff strength have increase their workload and created a lot of stress which affect their health and social life.

> *"As a staff here, you are always tired. This is because we are understaffed and you are always doing what two or three nurses should be doing. It also makes you work for longer hours to assist mostly in stabilising situations before handing over to the next shift staffs. This leads to staff fatigue and stress. It turns to affect your social and family life as well"* **(EN13)**

> "*Yes due to our limited staff situation most of us here have waist and spinal problems, because of prolong standing and lifting patients. Most of us are managing ourselves to take care of the patients. Most of the staff will tell you they don't lift patients because the individual had several episodes of back and waist problems*" **((EN10)**

However, a participant indicated that during national disasters and mass casualties, other staffs from different departments and those off duty are called to assist at the trauma surgical emergency unit

> "*I consider our staff strength to be inadequate. I remember sometimes when there are mass casualties of RTA, we sometimes have to call for help from other departments and wards. This is mostly done when the unit or hospital is pre-informed to expect large number of casualties. I remember being called before on a number of occasions that if I am around I should come and help.*" **(EN2)**

4.6.2 Training

The nurses acknowledged the importance of training as it gives personnel the requisite knowledge and keeps them informed with current ways of doing things. The participants mentioned that their knowledge in pain management was mainly acquired at the nursing training college and also from staff in the unit.

> *"We were taught in school, but we cannot remember what we were taught in school if we don't practice it. I will also say that, much of it was obtained from working on the ward. We had to learn on the job. So there is a combination of both what we read in school or taught in school and what we have learnt practically on the ward"* **(EN2)**

> **"…***That was during school, the knowledge in pain was acquired. On the job to you get to know different things about pain and how pain is managed. We are still learning about pain as we encounter similar situation we recall the previous knowledge and apply it*" **(EN5)**

> "*Some is acquired from the school and sometimes to we learn from senior colleagues by seeking their opinion on some cases that are challenging*" **(EN7)**

Some participants indicated the acquisition of pain knowledge through personal experiences with patients on the unit.

> "*I will say these things come with the years of experience working here*" **(EN1)**

> **"***I will say that I got it by years of practice. I have worked for a while here in trauma and I know that to take history or to get a proper history your patient should be in a good comfortable state devoid of pain"* **(EN10)**

Most of the nurses indicated attending in-service training in some areas in nursing, but had no training in pain management.

> "*I will say we have not been trained formally in pain management. I have received some in-service training but not had any specifically on pain training*" **(EN12)**
>
> "*I have not gone for any training in pain management. Most at times the workshops are on general nursing. But workshop purposely for pain I have had none since I came to this unit***" (EN8)**
>
> *"No oh, none that I can remember. I don't think so. All the refresher courses that I had done, I don't think I have done anything on pain management. May be when I was doing my degree but that was not a course on its own"* **(EN4)**

4.6.3 Logistics

The nurses lamented on inadequate logistics impeding effective pain management for RTA casualties. These included inaccessible analgesia, inadequate beds and stretchers and other medical equipment and supplies. Most of the nurses narrated that accessibility to drugs were

most of the time difficult leading to delay in the intervention to pain experienced by victims of RTA.

> "*Sometimes access to drugs are delayed, for example right now I don't even know who has the key to the locker of the drugs. So if there is an emergency and I need a drug (pethidine), I have to go round looking for the person who has the key"* **(EN1)**

> "*I wish that the pain medications would be available so we can have easy access to and administer when needed to avoid delays in pain relieve as patients go to pay before receiving treatment. Patients can pay for all at the end of the services rendered to them"* **(EN8)**

> *"Another issue is accounting for the pethidine used. And because you have to get their folder numbers to balance it and the patient has no folder, giving pethidine becomes difficult even though the patient genuinely needs pethidine"* **(EN10)**

Some nurses also mentioned that inadequate beds and stretchers contribute to ineffective relief of pain for RTA casualties.

> *"If we have enough beds it will help manage the fractures better because turning such patients in a plastic chair or wheel chair sometimes aggravate the pain of the casualties***" (EN4)**

> "*The beds and stretchers are not enough and sometimes other casualties are kept in wheelchairs and on the floor. And nursing cases in such situations are very tiresome and makes you develop severe back and waist pains"* **(EN11)**
>
> *"Someone is brought in with multiple trauma and because the whole place is full, you have to put the patient in a wheelchair which is not conducive for the patient himself. And some procedures help relief the patient of the pain. When you try to do the procedures in the wheelchair it makes them uncomfortable and it makes their pain even worst"* **(EN12)**

Nurses talked about limited stock of medical supplies such as splint, cervical collar, bandages and others. And resort to the use of improvised materials to help elevate, support and position fractured limbs.

"*Am sure if the things are there for example, gauze, crepe bandages and all others, nobody will come and ask you to account for things used for mass casualty. You see, because there is strict vigilance, when you want to collect things to use it becomes difficult. In trauma almost all casualties who come here might need IV fluids. And you will have to write for the relative to go all the way to the chemist to buy before, it delays your management so it is quite a difficult situation***" (EN10)**

"*Splinting materials should be something that is readily available for us to use instead of going round looking for improvised materials. Sometimes we have to walk to chemist to get cartons to use as splint and it all delays the pain management"* **(EN6)**

*"This is where the patient comes and there is nothing to work with, it becomes a challenge for you the care provider to look for other means to take care of the patient. Getting the improvised materials is also time consuming as the patient will still be in pain waiting as you work on getting the improvised one ready"***(EN13)**

4.6.4 Protocol

The nurses described the process through which casualties without relatives accompanying them were managed. They also mentioned means of personnel assistance during mass casualties.

"*Yes there is a protocol for mass casualty. Even if the person comes in severe pain and relative are not available we put them on that protocol package. We do protocol folder for them and start the treatment. After, when the relatives are available we then inform them to go and regularise the documentation"* **(EN5)**

"*For instance the policy of the hospital is such that all civilian who come without relatives and have no money are treated as protocol, where all services and drugs and treatment are given until relative show up to pay all bills before they are discharged*" **(EN6)**

"*Sometimes when there is a national disaster the hospital is informed to prepare in advance to attend to casualties. Personnel who are off duty or on leave are called from the barracks. Other staffs are drawn from other departments to give a helping hand at the trauma surgical emergency unit to take care of the casualties*" **(EN3)**

"*When the casualties are more at the triage, nurses at the cubicles come to the triage area to assist in taking care of the emergencies*" **(EN1)**

"*If there are patients at the triage, we send them into the cubicle to be able to receive the new ones coming. And if there are even doctors on the ward who are not busy are called to assist*" **(EN2)**

However, other participants narrated the need for standard protocol for pain management to guide and empower them to carryout pain management procedures effectively with confidence.

> "*I suggest there should be a written protocol that will back nurses actions since pain management are mostly done by the nurses. Sometimes the patient will be in severe pain and you will call the doctor and he/she might not be available to prescribe the drugs to be administered*" **(EN7)**

> "*As for a guide to pain management there is none and you will be blamed and held responsible for any eventful outcome actions taken. It will be very helpful if we have a written guide to guide our actions. When this is well rehearsed, our confidence will be high in treating pain since we are aware of doing the right thing*" **(EN8)**

4.6.5 Working Space

Some of the nurses indicated that their working space mostly impedes their pain management and also makes working stressful.

> *"The place is small and sometimes lot of casualties are received into that small space. It is not conducive to work when patients are stack together in a very warm place. Sometimes you have to rush into the sister's officer to take some fresh air before coming back to continue working"* ***(EN6)***

> "*Considering us being a national disaster hospital the space of the trauma surgical unit is too small. Sometimes it gets over-crowded and it slows down our work. Efficiency is reduced in pain management to clients as well as other nursing care to victims.*" **(EN7)**

> *"sometimes there are a lot of patient to take care of but the place is too small to work freely as the place gets congested*" **(EN11)**

The nurses also mentioned that the unconducive work environment leaves them with physical and psychological problems.

> "*The beds and stretchers are not enough and sometimes other casualties are kept in wheelchairs and on the floor. And nursing cases in such situations are very tiresome and makes you develop severe back and waist pains*" **(EN11)**

> "*As the things are not there and the patient cannot afford then you are being pushed to get something to manage the patient, this makes the work tiresome"* **(EN13)**

> "*When the patients report and the place is full, you cannot return such a casualty, meanwhile where to put such a patient to attend to his needs also becomes a challenge. These puts a lot of stress on staffs."* **(EN3)**

4.7 Summary

The above findings were based on data generated from the narrations of nurses who work at the trauma surgical emergency unit of the 37 military hospital. The findings revealed the multifaceted nature of the factors that influence nurses' pain management of road traffic accident casualties. Knowledge in pain assessment and management, personal pain experiences and institutional factors were identified to influence nurses' pain management of road traffic accident casualties.

The key findings in the study revealed that the nurses assessed RTA casualties' pain through verbal and non-verbal expressions and abnormal physiological changes, but did not use any pain assessment tool for casualties' pain assessment. The nurses were aware of the use of analgesics to treat pain however, the nurses have limited access to opioids to treat pain of casualties. Though the nurses have no training in pain assessment and management after school, the nurses' personal pain experiences influenced their pain management of casualties. The study also showed lack of guidelines and protocols for nurses, limited supply of consumables and equipment and limited number of staff to manage casualties' pain.

CHAPTER FIVE

DISCUSSION

The study explored the factors that influence nurses' management of pain of road traffic accident casualties in the military hospital emergency unit. The specific objectives sought to; explore the knowledge of nurses in assessment and management of pain of road traffic accident casualties, describe the personal pain experiences that influence nurses' assessment and management of road traffic accident casualties' pain and determine institutional factors that influence nurses' assessment and management of pain of road traffic accident casualties.

This chapter, which is focused on discussing key findings in this research is organized under four subheadings, thus nurses' pain assessment of casualties, nurses' pain management of casualties, nurses' personal pain experiences and institutional factors influencing pain assessment and management.

5.1 Nurses' Pain Assessment of Casualties

The first major theme of this study revealed ways nurses assess the pain experiences of road traffic casualties and these include; verbal and nonverbal expression of pain, physiological changes, and pain severity. These elements of assessments as reported support several findings in the literature (Booker & Haedtke, 2016; Gregory & Richardson, 2014; Horgas, 2017; Kaplow, 2015; Pasero & McCaffery, 2010; Rowbotham et al., 2013; Sacco et al., 2013; Stanley & Chinwe, 2016)

The study revealed that verbal expression of pain gave caregivers insight to casualty's pain. In a related study by Booker and Haedtke (2016) verbalization of pain was reported by patients in acute pain situations including road traffic accident casualties. Pain can be verbalized through crying, shouting and screaming for help, moaning and reporting

the presence of pain. Self-reports of the presence of pain have been considered to be among the most accurate and reliable means of assessing the presence and intensity of pain (Horgas, 2017). This indicates that nurses listening to verbal reports of pain in this study played an important role in pain assessment of road traffic accident casualties. However, participants in this study lacked the use of any of the verbal pain assessment tools (Gregory & Richardson, 2014). The use of appropriate pain assessment tool by nurses to identify pain and estimate its intensity is important to effectively manage the pain of RTA casualties. It is, however, incumbent on the casualty to report or explain vividly pain experience devoid of ambiguity to the caregiver to render effective care. This is in accordance with Mccaffery and Ferrell (2014) reference to pain as an individual and subjective phenomenon.

Nonverbal expression of pain was another finding from this study. This conforms to some earlier studies that have also shown similar ways of nonverbal pain expression (Booker & Haedtke, 2016; Rowbotham et al., 2014; Stanley & Chinwe, 2016). Facial expression, holding firmly on bed, pointing at the direction of the pain, restless in bed, guarding the pain site and sometimes clinching the teeth together are some of the nonverbal means by which nurses observed pain experiences. Mostly the nurses used observation of facial expression as the main nonverbal expression of pain in RTA casualties. This conforms to the validation of facial expression of pain reported in previous studies (Pasero & McCaffery, 2010; Rahu et al., 2013; Sheu, Versloot, Nader, Kerr, & Craig, 2011). This is the fact that the human face is conspicuous and depicts important messages when attention is paid to it (Craig, 2009; Lints-martindale, Hadjistavropoulos, Barber, & Gibson, 2007). Even though facial pain assessment has been established to have clinical value especially for non-verbal communicating patients (Rahu et al., 2013) its reliability may be limited by differences in individual facial features such as shape of face and hair distribution on the face and scalp. The individual variations in appearance may lead to significant outcome for

facial assessment (Christofolleti, Oliveira, & Siqueira, 2018). This challenge nurses to have adequate knowledge about the various distinctions in facial expression to rely on as a pain assessment tool. Nurses also paid particular attention to nonverbal expression of pain which were cue to clinically ascertain pain assessment for patients with some cognitive deficiencies and or oral communication challenges (Booker & Haedtke, 2016; Herr et al., 2011). It was, however, noted in this study that the nurses do not use pain assessment tools to elicit pain and its intensity. It is therefore important to use appropriate pain assessment tool to serve as a framework that would guide pain assessment in such vulnerable casualties (Gregory & Richardson, 2014; Lukas et al., 2010; Ruder, 2010)

The nurses reported the use of physiological changes such as alteration in vital signs as an indication of the presence of pain among RTA casualties. This was observed in casualties as elevated blood pressure, tachycardia, tachypnea and increased temperature. This finding is similar to previous studies (Booker & Haedtke, 2016; Horgas, 2017). Some previous studies have reported similar positive relationship between acute pain and heart rate (Kaplow, 2015) and blood pressure (Kaplow, 2015; Sacco et al., 2013). On the contrary, other earlier studies reported that increased in physiological changes such as vital signs may not signify the presence of pain but can suggest the need for pain assessment (Herr, 2006; Herr et al., 2011). For instance, an increase in heart rate in an RTA casualty may indicate a physiologic response to excessive haemorrhage. Although some participants of this study indicated awareness of physiological changes in response to the presence of pain, participants mainly used verbal and nonverbal expressions of pain.

5.2 Nurses' Pain Management of Casualties

The findings in this thematic area revealed the practise of both pharmacological and non-pharmacological means for the pain management of RTA casualties. The knowledge in the use of different forms of pain management for RTA casualties conforms to the clinical

practice guidelines of the American Pain Society (APS) recommendation that emphasizes multimodal pain approach (Chou et al., 2016). The study found the use of various type of pharmacological drugs in the management of pain of RTA casualties. Pain is managed with various kinds of analgesia such as non-steroidal anti-inflammatory drugs (NSAIDs), anti-pyretic, mild and strong opioids. This is in line with earlier studies which outline various types of analgesia used in managing traumatic injury pains (Ahmadi et al., 2016; Dijkstra et al., 2014). The study revealed that the nurses knew the use of opioids to alleviate severe pain in RTA casualties. Opioids are analgesics used to manage moderate to severe pain which does not respond well to other pain medications. It was however limited to the use of only pethidine and tramadol as the only available types among the numerous types recommended by opioids analgesia for traumatic injuries protocol (Metcalfe et al., 2015). The study also revealed extensive use of NSAIDs and acetaminophen for the treatment of traumatic pain. This is in consistence with other studies which indicated high rate usage (Adam et al., 2013; Atchison & Herndon, 2013; Jalili et al., 2016; Rasu et al., 2013). Non-steroidal anti-inflammatory drugs such as diclofenac, ibuprofen, ketorolac, and paracetamol are analgesics used to treat mild to moderate pain. Most of these analgesics are readily available and not under the controlled drug. Some studies had shown that some NSAIDs delay healing of bones and wounds and impede coagulation in severe trauma (Carter et al., 2014; Su & Connor, 2013; Zhao-fleming et al., 2018). It is therefore important to consider the therapeutic effect against the side effects in the usage of NSAIDs for trauma injuries.

The study found that intramuscular injection was the main route for administration of pain medications. This supports some studies which identified preference for intramuscular opioids and minimal manifestation of adverse effects (Giordano et al., 2010; Nota et al., 2015; Zhou et al., 2015). The use of intramuscular route in administering pain analgesia is inconsistent with current practice guidelines of the American Pain Society

(Chou et al., 2016) because it is associated with pain and has poor absorption. This is also emphasized in an exploratory study in the UK which showed that intramuscular route has not proven to be a better alternative compared to other routes such as oral, intravenous, rectal and tropical (Snell & Hicks, 2006). In this study, health professionals showed reluctance to administer opioids intravenously. This is in line with previous research where emergency nurses were reluctant to administer intravenous opioids when physicians were not around (Berben, Meijs, van Grunsven, Schoonhoven, & van Achterberg, 2012). Intravenous administration of opioids turns to aggravate their side effects such as nausea, vomiting, dizziness, light-headedness and respiratory depression. On the contrary, some studies did not show any severe complications associated with opioid usage but rather advocated its use in severe pain management at the emergency department. The study also revealed the use of oral analgesics for RTA casualties who did not need admission or detention for observation. Such casualties mainly reported with mild to moderate musculoskeletal pain as reported in other studies (Ali et al., 2017; Desanto & Guthmann, 2018; Megale et al., 2017). Nurses exhibited knowledge of the effects of analgesics used in this study. This conforms with previous research which identified varying effects of analgesia for pain management (Carter et al., 2014; O'Neil et al., 2012; Richette et al., 2015). Observation and evaluation of both therapeutic and adverse effects promote adequate intervention of pain.

The study found the use of some non-pharmacological methods in the management of road accident casualties. This is in line with earlier studies which reported on various non-pharmacological pain interventions (Aydemir et al., 2018; Do Rosário et al., 2013; Kannus, 2015; Martin et al., 2013; Petersen et al., 2013; Sommerfeldt et al., 2015). Non pharmacological means of pain intervention adopted by nurses include positioning, hot and cold applications, distraction, relaxation and breathing exercise. The nurses immobilized

fractured limbs as adjuvant to pain intervention. Arm slings, splints, card boards, soft band, and gauze bandage are used to immobilize fractured limbs to prevent further injury and allow adequate blood supply to the area and helped in pain reduction (Sommerfeldt et al., 2015). Positioning of casualties in bed for reduction of pain was seen in this study. This supports some studies which indicated relief of pain by adoptions of some positions (Aydemir et al., 2018; Do Rosário et al., 2013). Patients positioning is sometimes achieved by supporting parts of the body with pillows, sand bags, and adjusting beds to make patients comfortable. The study also identified reassurance in management of pain. Although the nurses supported administration of analgesics with reassurance to reduce anxiety and allay fears of casualties, Pincus et al. (2013) noted that reassurance that provides information and education about the disease can reduce fear in the long term. Moseley and Butler (2015) also found that educating patients on the biological cause of pain contribute immensely to the reduction of pain.

5.3 Nurses' Personal Pain Experiences

The study found that personal pain experiences of nurses affected the assessment and management of pain of RTA casualties. This theme considered the causes of the pain, perception of pain management received and how that influenced the management of RTA casualties' pain. The nurses experienced various kind of mild to severe pain from fracture, dislocation, cuts, surgical incision, and others which are generally recognized in literature. Pain is normally considered to occur from the destruction of body tissues due to injury or disease process. Some common causes of pain include lacerations, contusion, sprain, fracture, burns, and disease process involving almost all organ systems. These easily identifiable sources of pain are referred to as nociceptive pain whiles neuropathic pain is due to damaged nerves which are normally not easily identified (Craig, 2015). Pain is said to be acute when the onset is sudden and sharp in nature and the duration does not exceed 3

- 6 months. Acute pain is also relieved when the underlining cause is no more present. Chronic pain, however, is considered as persistent or recurrent pain which lasts more than 3 months and it impedes activities of daily life and participation in social roles (Ciaramella, 2017).

Individuals in pain expect to receive effective pain intervention that would relieve them of their pain experiences. This study revealed dissatisfaction in the pain treatment received by most of the nurses. Some earlier studies which support this finding indicated insensitivity of nurses towards their pain experiences and management of their pain (Pathmawathi et al., 2015; Rad et al., 2015). The findings, however, contradicts other previous studies in which most patients showed satisfaction in their pain management at the hospitals (Bozimowski, 2012; Gupta, Lee, Mojica, Nairizi, & George, 2014; Ramia, Nasser, Salameh, & Saad, 2017; Sturesson, 2017). Patient satisfaction is significantly dependent on meeting or exceeding expectations. This is achieved when caregivers have adequate knowledge to assess pain and give appropriate pan intervention promptly. Bozimowski (2012) suggested that nurses should avoid the thinking of patients getting addicted to some analgesics and the perception that some patients exaggerate their pain to draw attention of caregivers. Satisfaction is also achieved when patients are well informed about their pain approaches through effective communication. It is therefore important to involve patients in the management of their pain.

The findings suggested that nurses with previous pain experience are sensitive to casualties in pain. Such nurses empathize with the casualties and prioritize pain management of casualties. These findings support qualitative research conducted in Northern Greece which sought to gain insight to the ways personal experience of pain affects the attitudes of health care providers (Pediaditaki et al., 2010). The health care providers indicated that their previous pain experience provided better understanding of the patients' pain experiences,

and this facilitated rendering effective pain intervention. This does not imply that nurses who have no pain experience cannot render effective pain management. The skills of pain management can be acquired through learning. The nurses with such personal experiences of pain could share or teach others to equip them with such knowledge and skills to enable them to understand the concerns of casualties' pain. It is, however, important to individualize pain management of casualties to achieve effective outcome as pain is subjective and generalizing casualties' pain management may be ineffective (Fillingim, 2017)

5.4 Institutional Factors Influencing Pain Assessment and Management

This theme revealed some factors that affect nurses' pain management of RTA casualties. Some of these factors included staffing, training, logistics, protocol and working area. Nurses with adequate knowledge and skills in pain management require suitable logistics and serene environment to effectively render the care of pain relief (Abdalrahim et al., 2010). The above factors have been found in other studies in different situations and settings (Abdalrahim et al., 2010; Aziznejadroshan, Parvin Alhani & Mohammadi, 2017; Gjesdal, Dysvik, & Furnes, 2019; Jansen et al., 2017; Shindul-Rothschild et al., 2017; Stenner, Courtenay, & Cannons, 2011)

Staffing plays an important role in the management of road traffic accident casualties' pain (Shindul-Rothschild et al., 2017). This study showed inadequate number of nurses at the emergency unit to take care of the pain of road traffic accident casualties. This contradicts recent studies which emphasized the importance of availability of nurses in accelerating pain relief in patients (Aziznejadroshan, Alhani, & Mohammadi, 2016; Shindul-Rothschild et al., 2017). Right staffing (nurse-to-patient ratio) is crucial for health care delivery, particularly in emergency units given the high turnover rate of RTA casualties (Aziznejadroshan et al., 2017). Staffing in this context borders on availability of the right

quantity and quality of nursing staff to offer timely pain management services to casualties. Poor staffing leads to rationing of care, which may aggravate the pain and extend hospital stay and increased risk of death (Motov et al., 2018). The presence of adequate nurses at the emergency unit creates the opportunity for casualties in pain to receive early assessment and prompt management of their pain (Holden et al., 2011). Enough nurses at the emergency unit reduce the workload of nurses and enable them to have time to re-evaluate the intervention given to casualties (Gurses, Carayon, & Wall, 2009). This makes the nurses to take appropriate actions when necessary to achieve effective outcome of pain relief. Thus patient-nurse ratio is enhanced, therefore, individual casualties have the opportunity of the nurse having adequate time to listen and understand them better to meet the pain needs of casualties.

The nurses indicated receiving no training in pain assessment and management of RTA casualties for the period working at the emergency unit. This conforms to a study conducted in Central Africa among emergency nurses which revealed inadequate knowledge resulting from lack of training in pain assessment and management (Rampanjato, Mukarugwiza, Ndimubanzi, & Brendan, 2007). Training empowers nurses with the requisite knowledge and skills and makes them aware of the various pain assessment tools and appropriate use of these tools (Gregory & Richardson, 2014; Ruder, 2010). It also equips nurses with various management approaches to relieve the pain of road accident casualties. Training in pain assessment and management is indicated to yield better outcomes in the treatment of pain (Nuseir et al., 2016; Silva et al., 2013). Inadequate training implies that the workforce would lack suitable up-to-date knowledge, skills, and abilities to effectively manage pain among causalities. Ahmed et al. (2016) therefore recommend the incorporation of periodic training in pain assessment and management for emergency nurses to enhance effective pain management.

This study revealed that logistics such as pharmacological and equipment were not readily available for nurses to work with to alleviate the pain of casualties. These included inadequate access to opioids, unavailable immobilization materials and limited number of beds and stretchers. It was indicated in WHO report (2010) that over 150 countries do not have access to morphine and some strong opioids. Opioids are recommended for the treatment of moderate to severe pain. Limited access to opioids renders the treatment of pain of casualties ineffective. It is important to make opioids available and accessible at the emergency units' nurses for the management of pain of road accident casualties. Materials for immobilization such as splint, soft band, and bandages are adjuvants to pain management of accident casualties. The availability of these materials and equipment facilitates the management of pain among accident casualties (Ahmadi et al., 2016; Sommerfeldt et al., 2015).

Similarly, a poorly structured working environment affects decent work. The ILO (2018) indicates that people seek to have not just a job but a good working environment. One which is well structured, spacious and ventilated since a good working environment promotes health and safety. The study finding did not adequately fulfil this ILO standards. A decent working environment is necessitated particularly, in emergency units of hospitals to help avoid overcrowding, injuries and unnecessary delays in the bid to deliver nursing services (Gurses et al., 2009; Motov et al., 2018)

5.5 Summary of Discussion

The study found that nurses assess pain of road accident casualties through verbal expression, nonverbal expression, and physiological changes. Nurses listen to the pain expressions in terms of location, nature and intensity as described by casualties. The casualties' verbal expression of pain provides better understanding for nurse since pain is subjective. Facial expression, restless in bed, guarding the site of pain, and sometimes

clinching the teeth together are some of the nonverbal means by which nurses observed pain experiences of casualties. Some physiological changes such as increased in body temperature, increased heart rate, and elevated blood pressure are also attributed to pain when infection, hypertension, and excessive haemorrhage are ruled out. The absence of utilising pain assessment tools created challenges in recording and evaluation of pain interventions.

The nurses employed both pharmacological and nonpharmacological approaches to managing pain of accident casualties. Mostly, nurses used intramuscular diclofenac and tramadol to manage pain. Pethidine is used as and when available as it a controlled drug and its supply is regulated by prescription of the doctors. Immobilization of fractured limbs, putting casualties in comfortable positions and reassurance are other pain intervention activities the nurses used. Most of these activities are made through the use of improvised of materials.

Although the social communication model of pain by Craig (2009), did not spell out specific factors which influence pain management at the clinical settings, the nurses identified some challenges which greatly affect pain management of RTA casualties. These challenges included limited staff strength, lack of training in pain for staff, absence of protocol for pain management, inadequate supply of logistics to manage pain and limited working space.

CHAPTER SIX

SUMMARY, CONCLUSION AND RECOMMENDATION

This chapter presents summary of the study, implication of the findings to nursing education, research, practice, and policy. It also includes limitations of the study, recommendations, and conclusion.

6.1 Summary of the Study

The increasing spate of road traffic accidents renders most casualties with various injuries and associated intensity of pain. Pain management has been a challenge globally especially in the middle and low-income countries, although there is increasing research in the area. This study, therefore, sought to explore pain management by nurses among road traffic accident casualties. The constructs of the caregiver aspect of the Social Communication Model of Pain by Craig (2009) was used as a guide for the study.

A qualitative descriptive research design was used to explore pain management by nurses among road traffic accident casualties in 37 Military Hospital in Accra, Ghana. Thirteen nurses who had been working at the trauma surgical emergency unit for a year and above were recruited through purposive sampling technique. A semi-structured interview guide was designed to elicit responses from participants. The interview guide was pilot-tested at an accident and emergency unit of a different hospital.

Ethical clearance was sought from Noguchi Memorial Institute for Medical Research Institutional Review Board and also the 37 Military Hospital granted authorisation to access the study setting after clearance from its Ethical Review Committee. Self-introduction and explanation of the purpose of the study was made to the participants at their morning meeting a week before the beginning of data collection. Only participants who consented were employed in the study. Consent was sought from participants to record the interview which were transcribed verbatim. The data was manually analysed using thematic

content analysis and methodological rigour was also ensured based on Lincoln and Guba (1985) criteria.

Four major themes with 14 subthemes emerged during the analysis of data. The main themes were; nurses' pain assessment of casualties, nurses' pain management of casualties, personal pain experiences and institutional factors influencing pain assessment and management. The study findings showed various forms of pain assessment and management which were mostly consistent with previous studies. The nurses indicated the use of verbal and nonverbal expressions and some physiological change parameters to elicit pain in road accident casualties. Pain was verbalized through crying, shouting and screaming for help, moaning and reporting the presence of pain. Facial expression, holding firmly on bed, pointing at the direction of the pain, restless in bed, guarding the pain site, and sometimes clinching the teeth together were some of the nonverbal means by which nurses observed pain experiences of casualties. Alteration in vital signs such as elevated blood pressure, tachycardia, tachypnoea, and increased temperature were the physiological means by which the presence of pain was elicited from casualties who could not express their pain. It was however, noted in this study that the nurses do not use pain assessment tools to elicit pain experience and its intensity.

The findings indicated the use of both pharmacological and nonpharmacological means in the management of pain of casualties. Pharmacologically, the nurses use intravenous paracetamol, intramuscular diclofenac and tramadol. Intramuscular pethidine was used when accessible and other opioids such as morphine, fentanyl were not available. Immobilisation with splints, cervical collar, and bandages with the support of positioning injured limbs with pillows and cardboards and reassurance were the nonpharmacological means nurses use to manage pain of casualties. The findings revealed that the nurses' personal pain experiences had a positive effect on their pain management of road traffic

casualties. The study also found some institutional factors which affect the management of pain of casualties of road traffic accident. These included staffing, training, logistics protocols, and working space.

6.2 Implication of the Findings

The findings of the study have implications for nursing education, research and practice.

6.2.1 Implication for Nursing Education

The findings of the study revealed some nursing knowledge deficit in pain assessment and management. This was evidenced in the nurses' narrations which indicated that the nurses had no training in pain after completion of nursing training college. In the short to medium term, in-service training should be designed to equip the nurses at the emergency units with the requisite knowledge and skills to be abreast with current trends in pain assessment and management of road accident casualties. The study found that the nurses at the Trauma Surgical Emergency Unit were registered general nurses who had no specialised training. Specialist training programme in emergency trauma nursing should be established to train nurses for effective and efficient operations of the emergency units. This will give nurses the required skills and knowledge to appropriately manage casualties.

6.2.2 Implication for Nursing Research

The study findings could be the basis for further nursing research in the following areas;

1. Examine the effectiveness of non-pharmacological pain management among road traffic accident casualties.
2. Explore the coping strategies of nurses at the emergency department amidst limited resources.
3. Evaluate the influence of institutional factors on pain management of road accident casualties.

6.2.3 Implication for Nursing Practice

The findings of this study have identified some issues that need to be addressed to improve pain management of nurses among road accident casualties. Pain assessment through verbal expression, non-verbal expression, and physiological changes should be elicited with the appropriate pain assessment tool. The use of these pain assessment tools aids in monitoring and evaluation during pain intervention (Abdelwahab, Yang, & Teka, 2017). In view of this, the nurses at the emergency units should learn the various pain assessment tools and use them appropriately in the assessment of road accident casualties' pain. Pain management among road accident casualties should be geared towards the needs of the individual as pain experience is subjective. Although pharmacological means of pain management is significant, nurses are encouraged to ensure multimodal approach to pain management by adding non-pharmacological methods to their management. To prevent delays in pain management, standard protocols for pain management for casualties should be designed for the nurses. This is to enable the nurses respond effectively to pain complains in the absence of a doctor. Nurses should be educated on this protocol to facilitate the pain interventions promptly. Some institutional factors such as inadequate staff and logistics, no training and protocols and limited working space have also been identified to negatively affect pain management of nurses among casualties of road traffic accident. It is therefore important to improve on these limitations to enhance effective pain intervention for accident casualties.

6.3 Limitations of the Study

The study recruited only registered general nurses to explore pain management of road traffic accident casualties.

6.4 Recommendations

Based on the findings of the study the following recommendations are made to equip nurses at the trauma emergency units to adequately manage pain of road accident casualties.

6.4.1 Recommendation for Ministry of Health

The Ministry of Health (MOH) should put policies in place that would train emergency nurses with the required knowledge and skills. This could be in the form tasking some institutions to training and also design sponsorship package for such nurses. This would provide specialised emergency nurses to manage the various trauma surgical emergency units in the hospitals.

6.4.2 Recommendation for Nursing and Midwifery Council of Ghana

1. The Nursing and Midwifery Council of Ghana (NMC) as the regulatory body of nurses should collaborate with stakeholders to develop curriculum to train specialised emergency nurses.

2. The council should emphasize pain management in the curriculum at all levels of nursing education.

3. The council should also ensure that nurses at the emergency units receive training in pain management as a requirement to renew their licence to practice

4. The council should collaborate with organisers of Continuous Professional Development (CPD) training to make pain a mandatory topic each year.

6.4.3 Recommendation for Nursing Administration

1. Nursing Administrators should consider the workload and turnover rate of patient in the emergency units to allocate enough nurses to the emergency units.

2. Adequate supply of equipment and consumables should be ensured to enhance effective pain management of casualties.

3. Develop suitable pain management protocols to aid nurses in the management of pain of road accident casualties amidst the limited available doctors at the emergency units.

6.4.4 Recommendation for 37 Military Hospital

1. Periodically the hospital should organise in-service training on pain assessment and management for nurses working at the trauma surgical emergency unit (TSEU) to equip the staff with current trends in pain management of trauma casualties. It should be designed such that it does not compound the already existing limited staff strength.

2. The nurses should be trained on how to use the various pain assessment tools and encourage the nurses to use them appropriately.

3. Develop suitable pain management protocols for road traffic accident casualties to enable nurses to manage pain with confidence.

4. The staff strength should be increased to meet the increasing demand of casualties reporting at the TSEU regularly.

5. Management should review existing protocols to facilitate easy supply and access to logistics at the TSEU to improve pain management of RTA casualties.

6. Management should consider a long-term plan of expanding the TSEU to meet the patient turnover as a national disaster hospital to prevent the frequent congestion of casualties seeking pain intervention at the unit.

6.5 Conclusion

The study explored nurses' pain management among road traffic accident casualties at the 37 Military Hospital in Accra, Ghana. A qualitative descriptive research design was used with a face-to-face interview of 13 participants. The findings indicated the importance of pain assessment as pre-requisite for pain management of road traffic accident casualties.

Pain presence is elicited through verbal and non-verbal expressions and changes in physiological parameters with the aid of pain assessment tools. The findings also emphasized the use of multimodal approach of pain management in accident casualties. These involve administering of medications and non-pharmacological means such as immobilisation of fractured limbs, putting patients in comfortable position and reassurance of casualties. Though the Social Communication Model of Pain by Craig (2009) guided the study, it did not specifically outline clinical setting factors which influence pain management. The study, however, found that inadequate nurses and logistics, absence of training and protocols and limited working space negatively affect pain management of road traffic accident casualties.

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APPENDICES

Appendix A: Ethical Clearance - Noguchi

NOGUCHI MEMORIAL INSTITUTE FOR MEDICAL RESEARCH
Established 1979A Constituent of the College of Health Sciences
University of Ghana

INSTITUTIONAL REVIEW BOARD

Phone: +233-302-916438 (Direct)
+233-289-522574
Fax: +233-302-502182/513202
E-mail: nirb@noguchi.ug.edu.gh
Telex No: 2556 UGL GH

Post Office Box LG 581
Legon, Accra
Ghana

My Ref. No: DF.22
Your Ref. No:

20th November, 2018

ETHICAL CLEARANCE

FEDERALWIDE ASSURANCE FWA 00001824 **IRB 00001276**

NMIMR-IRB CPN 021/18-19 **IORG 0000908**

On 20th November 2018, the Noguchi Memorial Institute for Medical Research (NMIMR) Institutional Review Board (IRB) at a full board meeting reviewed and approved your protocol titled:

TITLE OF PROTOCOL : **Pain management by nurses of road accident casualties at the 37 Military Hospital emergency unit**

PRINCIPAL INVESTIGATOR : **Thomas Kwame Tata, MPhil Cand.**

Please note that a final review report must be submitted to the Board at the completion of the study. Your research records may be audited at any time during or after the implementation.

Any modification of this research project must be submitted to the IRB for review and approval prior to implementation.

Please report all serious adverse events related to this study to NMIMR-IRB within seven days verbally and fourteen days in writing.

This certificate is valid till 19th November, 2019. You are to submit annual reports for continuing review.

Signature of Chair: .....
Mrs. Chris Dadzie
(NMIMR – IRB, Chair)

Appendix B: Ethical Clearance – 37 Military Hospital

Institutional Review Board
37 Military Hospital
Neghelli Barracks
ACCRA

Tel: 0302 769667
Email:irbmilhosp@gmail.com

21 November 2018

ETHICAL CLEARANCE

37MH-IRB IPN 260/2018

On 25th October 2018, the 37 Military Hospital (37MH) Institutional Review Board (IRB) at a Board Meeting reviewed and approved your protocol.

TITLE OF PROTOCOL: Pain Management by Nurses of Road Traffic accident casualties at the Military Hospital Emergency Unit

PRINCIPAL INVESTIGATOR: Thomas Kwame Tata

Please note that a final review report must be submitted to the Board at the completion of the study.

Please report all serious adverse events related to this study to 37MH-IRB within seven (7) days verbally and fourteen (14) days in writing.

This certificate is valid until 24th October 2019.

DR EDWARD ASUMANU
(37MH-IRB, Vice Chairman)

37 MILITARY HOSPITAL
INSTITUTIONAL REVIEW BOARD
DATE 21-11-18

Cc: Brig Gen MA Yeboah-Agyapong
Commander, 37 Military Hospital

Appendix C: Consent Form

CONSENT FORM

Title: Pain management by nurses of road traffic accident casualties at the military hospital emergency unit.

Principal Investigator: Thomas Kwame Tata

School of Nursing and Midwifery

University of Ghana General

Legon, Accra

Tel: 0244863402

Email: kttata@st.ug.edu.gh / xetsu@yahoo.com

General Information about Research

I am a second year masters in nursing student at the University of Ghana conducting a study on pain management. This study is for academic purposes, and it is aimed to explore pain management by nurses of road traffic accident casualties at the military hospital emergency unit. You have been selected to be a participant, though, it is not compulsory for you to participate in this study. I would like you to provide me with information on pain assessment and management of RTA casualties at the 37 Military Hospital.

If you agree to participate, you will sign two copies of this form (one will be kept by you and the other with me. After that an interview will be scheduled with you at your own time and convenient place which is expected to last between 30 to 60 minutes. This interview will be conducted in English. Before the interview begins, your consent will be sought to record the

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conservation. You have the right to withdraw your participation at any time and this will not affect you in anyway.

Possible Risk and Discomfort

The study will not cause any harm to you. It only requires your time for participation.

Possible Benefits

The study will not provide any direct benefits to you.However, you may benefit indirectly since the outcome of the study and recommendations from the study may lead to review of protocols and provision of facilities that may enhance pain management. This will equip you (nurses) with the requisite skills and provision of good working environment that will intend lead to effective pain management of RTA casualties.

Confidentiality

All information given by you including voice recordings and transcribed data will be protected. The information will be kept in safe custody by the supervisor for five years after which it would be destroyed. Only the principal investigator (me) and my supervisors will have access to the information gathered. Codes will be used in place of your name and your demographic data will be separated from the actual interview to prevent tracing what you said.

Compensation

You will not be paid for taking part in this study. However, your time spent will be appreciated by giving you GH₵20 for refreshment.

Voluntary Participation and Right to leave the Research

Participation in this study is voluntary and you are free to withdraw from the study at any stage without any consequence. You may inform the researcher of the intention to withdraw and you may not be required to provide reason for your withdrawal.

Contacts for Additional Information

In case of further information or pertinent enquiry about this study, please contact the principal investigator: Thomas Kwame Tata, Telephone number: +233244863402 or Email: kttata@st.ug.edu.gh

You may also contact the following supervisors for enquiries

Prof Lydia Aziato, Ag. Dean of School of Nursing and Midwifery University of Ghana, Legon, P. O. Box LG 43, Legon, Accra, Ghana. Tel: +233244719686. Email: aziatol@yahoo.com

Dr Lilian AkorfaOhene, Department of Community Health Nursing, School of Nursing and Midwifery University of Ghana, Legon, P. O. Box LG 43, Legon, Accra, Ghana. Tel: +233246395696 Email:akorfaohene11@yahoo.com

Your right as a Participant

This research has been reviewed and approved by the Institutional Review Board of Noguchi Memorial Institute for Medical Research (NMIMR-IRB) and the Institutional Review Board of 37 Military Hospital. If you have any question about your right as a research participant you can contact the IRB Office between the hours of 8am – 5pm through the landline 0302916438 or email address: nirb@noguchi.ug.edu.gh, irb37milhosp@gmail.com 0302769667 or 0243004247.

NMIMR INSTITUTIONAL REVIEW BOARD
VALID UNTIL
0 6 NOV 2019
APPROVED DOCUMENT

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Appendix D: Volunteer Agreement

VOLUNTEER AGREEMENT

The above document describing the benefits, risks and procedures for the research title (Pain management by nurses of road traffic accident casualties at the military hospital emergency unit) has been read and explained to me. I have been given an opportunity to have any question about the research answered to my satisfaction.

I agree to participate as a volunteer.

---------- ----------

Date Name and Signature or mark of volunteer

I certify that the nature, purpose, potential benefits and possible risk associated with my participation in this research have been explained to the above individual.

---------- ----------

Date Name Signature of Person Who Obtained Consent

NMIMR INSTITUTIONAL REVIEW BOARD
VALID UNTIL
06 NOV 2019
APPROVED DOCUMENT

4

Appendix E: Information Sheet and Interview Guide

SEMI-STRUCTURED INTERVIEW GUIDE

Code Number……

SECTION A:Demographic Information

Background information of participant will be collected after securing their consent to participate in the study. This information will enhance further understanding of the individual differences of the participants and the examination of the characteristics of data.

Please provide the following details about yourself.

1. Military or Civilian:……...
2. Age:……
3. Gender:……...
4. Marital status…… ……
5. Number of Children……...
6. Level of Education……
7. Professional Grade: ……...
8. Years of Nursing Experience:……
9. Years spent at TSEU:……
10. Indicate any Training in pain assessment/management:……

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SECTION B. Main Questions

1. How do you know an RTA casualty is in pain on arrival to the TSEU?

Probes:

- Observation of signs of pain
- Physical examination
- Verbalization of pain

2. How do you know the intensity or severity of the casualty's pain?

Probes:

- Use of pain scale
- Pain Score 0-10 Numerical Rating Scale
- Facial expression rating Scale (Wong Baker faces pain scale)
- Colour circle pain scale
- Patient self-report

3. How do you manage the pain of RTA casualties?

Probes:

- Pharmacological (Drugs)
- Non- Pharmacological
- Challenges

4. What factors contribute to your assessment and management of pain of RTA casualties?

Probes:

- Professional training
- Protocol
- Staffing
- Drugs
- Challenges

5. Please can you share with me any pain you had experienced yourself?

Probes:

- Type

2

Duration

Relief methods

Impression of pain relief

Influence of pain experience on pain management

6. Please what suggestions would you make to help improve pain assessment and management of RTA casualties?

7. Please do you have anything else to share with me?

3

Appendix F: Participants' Biographic Data

Code	Age(Years)	Sex	Category of staff	Marital Status	No. of Children	Educational Level	Professional Grade	Years of Practice	Years at TSEU	Any training in Pain
EN1	45	F	CIV	Married	1	Tertiary	Principal Nursing Officer	22	9	No
EN2	28	M	MIL	Married	NIL	Tertiary	Staff Nurse	4	2	No
EN3	28	M	MIL	Married	NIL	Tertiary	Staff Nurse	4	3	No
EN4	28	F	MIL	Single	NIL	Tertiary	Nursing Officer	4	1	No
EN5	32	F	CIV	Married	2	Tertiary	Senior Staff Nurse	7	3	No
EN6	39	M	MIL	Single	3	Tertiary	Nursing Officer	13	1	No
EN7	39	M	CIV	Married	3	Tertiary	Nursing Officer	15	14	No
EN8	35	M	MIL	Married	3	Tertiary	Nursing Officer	9	3	No
EN9	41	F	CIV	Married	2	Tertiary	Senior Nursing Officer	15	7	No
EN10	35	F	CIV	Single	NIL	Tertiary	Senior Nursing Officer	15	14	No
EN11	26	M	MIL	Single	NIL	Tertiary	Staff Nurse	4	2	No
EN12	40	M	MIL	Married	NIL	Tertiary	Senior Nursing Officer	15	7	No
EN13	42	M	MIL	Married	2	Tertiary	Nursing Officer	8	5	No